



CHILLERS AND HEAT PUMPS - Technical manual

ANL ANL H ANL C



Dear Customer,

Thank you for choosing an AERMEC product. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

In addition, the CE mark guarantees that our appliances fully comply with the requirements of the European Machinery Directive in terms of safety. We constantly monitor the quality level of our products, and as a result they are synonymous with Safety, Quality, and Reliability.

Product data may be subject to modifications deemed necessary for improving the product without the obligation to give prior notice.

Thank you again.
AERMEC S.p.A

AERMEC S.p.A. reserves the right at any moment to make any modifications considered necessary to improve our products and is not obliged to add these modifications to machines that have already been fabricated, delivered or are under construction.

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ANL
ANLH

SERIAL NUMBER

CE DECLARATION OF CONFORMITY

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

NAME ANL
TYPE WATER/AIR chiller, heat pump
MODEL

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60335-2-40	Safety standard regarding electrical heat pumps, air conditioners and dehumidifiers
IEC EN 61000-6-1 IEC EN 61000-6-3	Immunity and electromagnetic emissions for residential environments
IEC EN 61000-6-2 IEC EN 61000-6-4	Immunity and electromagnetic emissions for industrial environments
EN378	Refrigerating systems and heat pumps - Safety and environmental requirements
EN12735	Copper and copper alloys - Seamless, round copper tubes for air conditioning and refrigeration
UNI 12735	Seamless, round copper tubes for air conditioning and refrigeration
UNI 14276	Pressure equipment for cooling systems and heat pumps

Therefore complying with the essential requisites of the following Directives:

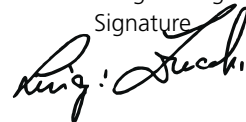
- LVD Directive: 2006/95/CE
- Electromagnetic compatibility Directive 2004/108/CE
- Machinery Directive 2006/42/CE
- PED Directive regarding pressurised devices 97/23/CE

The product, in agreement with Directive 97/23/CE, satisfies the Total quality Guarantee procedure (form H) with certificate n.06/270-QT3664 Rev.5 issued by the notified body n.1131 CEC via Pisacane 46 Legnano (MI) - Italy

Bevilacqua

20/06/2010

Marketing Manager
Signature



ANLC

SERIAL NUMBER	
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CE DECLARATION OF CONFORMITY

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

NAME

ANL C

TYPE

MOTORCONDENSING CHILLER

MODEL

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60335-2-40

Safety standard regarding electrical heat pumps, air conditioners and dehumidifiers

IEC EN 61000-6-1

IEC EN 61000-6-3

Immunity and electromagnetic emissions for residential environments

IEC EN 61000-6-2

IEC EN 61000-6-4

Immunity and electromagnetic emissions for industrial environments

EN378

Refrigerating systems and heat pumps - Safety and environmental requirements

EN12735

Copper and copper alloys - Seamless, round copper tubes for air conditioning and refrigeration

UNI 12735

Seamless, round copper tubes for air conditioning and refrigeration

UNI 14276

Pressure equipment for cooling systems and heat pumps

Therefore complying with the essential requisites of the following Directives:

- LVD Directive: 2006/95/CE

- Electromagnetic compatibility Directive 2004/108/CE

- PED Directive regarding pressurised devices 2006/42/CE

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DECLARATION OF INCORPORATION

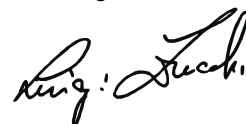
We, the undersigned, declare under our own responsibility, in compliance with paragraph 2, art. 4 of the Machinery Directive 98/37/CE, that start-up is prohibited before the machine in which it has been incorporated has been declared conform with the provisions of the Machinery Directive and/or all applicable Directives.

Bevilacqua

20/06/2010

Marketing Manager

Signature



GENERAL WARNINGS

AERMEC ANLs are constructed according to the recognised technical standards and safety regulations. They have been designed for air conditioning and the production of domestic hot water (DHW) and must be destined to this use compatibly with their performance features. Any contractual or extra-contractual liability of the Company is excluded for injury/damage to persons, animals or objects owing to installation, regulation and maintenance errors or improper use. All uses not expressly indicated in this manual are prohibited.

PRESERVATION OF THE DOCUMENTATION

The instructions along with all the related documentation must be given to the user of the system, who assumes the responsibility to conserve the instructions so that they are always at

hand in case of need.

Read this sheet carefully; all works must be performed by qualified staff, according to Standards in force on this subject in different countries. (Ministerial Decree 329/2004).

The appliance must be installed in such a way as to enable maintenance and/or repairs to be carried out.

The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty.

Do not modify or tamper with the chiller as dangerous situations can be created and the manufacturer will not be liable for any damage caused. The validity of the warranty shall be void in the event of failure to comply with the above-mentioned indications.

Standards and Directives respected on designing and constructing the unit:

Safety:

Machinery Directive
2006/42/CE

Low Voltage Directive
LVD 2006/95/CE

Electromagnetic compatibility
Directive

EMC 89/336/EEC

Pressure Equipment Directive
PED 97/23/CE EN 378,
UNI EN 14276

Electric part:

EN 60204-1

Protection rating

IP24

Acoustic part:

ISO DIS 9614/2
(intensimetric method)

Certifications:

Eurovent

Performance data:

UNI EN 14511 Standard

Refrigerant GAS:

This unit contains fluoride gases with greenhouse effect covered by the Kyoto Protocol. Maintenance and disposal must only be performed by qualified staff.
R410A GWP=1900

1. DESCRIPTION AND CHOICE OF UNIT

ANL R410A coolers and air cooled heat pumps have been designed and manufactured to satisfy heating and cooling needs and the production of domestic hot water (DHW) in medium to small commercial or residential buildings.

These units, available in 10 sizes, have extremely silent functioning and are highly efficient and reliable, thanks to the use of exchangers with a large exchange surface and low-noise high-efficiency scroll compressors.

They are available in the following versions:

- **COOLING ONLY ANL °**
 - ° *Temperature of produced water up to 4 °C*
 - Z is the version that allows to produce cooled water FROM 4 °C TO 0 °C*
 - Y is the version that allows to produce cooled water FROM 0 °C TO -6 °C*
- **HEAT PUMP ANL H**
 - Winter to summer switch-over functioning can be applied via the cooling circuits.*
 - Possibility of producing DHW (DCPX mandatory)*

– MOTORCONDENSING ANL C

The versions can be in different set-ups at the same time in order to satisfy a wide range of plant engineering solutions.

- "BASE"
- PUMP ONLY
- INCREASED PUMP ONLY
- STORAGE TANK AND PUMP
- STORAGE TANK AND INCREASED PUMP
- DESUPERHEATER

NOTES

Refer to the configurator for the set-ups that are not possible.

WARNING

Before use (or after a prolonged period of suspension) of units with low air temperature functioning and also with a heat pump, it is of extreme importance that the oil in the sump compressor is heated for at least 8 hours using the electrical resistances. The sump resistance is powered automatically when the unit stops as long as the unit is live.

1.1. CONFIGURATOR

1,2,3	4,5,6	7	8	9	10	11	12	13
ANL	020	H	P	°	°	°	°	M

Campo	Code
1, 2, 3	ANL
4, 5, 6	Sizes 020-025-030-040-050-070-080-090-100-150-200
7	Model ° Cooling Only H Heat pump
8	Version ° Standard P With pump N With increased pump (from 100 to 200) A With storage tank and pump Q With INCREASED storage and pump (from 050 to 200)
9	Heat recovery ° Without heat recovery units D With desuperheater (from 050 to 200)
10	Coils ° in aluminium R In copper S Tinned copper V Painted aluminium
11	Field of use ° temperature of water produced up to 4 °C Z temperature of water produced from/to 4 ÷ 0 °C Y temperature of water produced from/to -1 ÷ -6 °C
12	Evaporator ° PED Standard ¹ C Motor condenser
13	Power supply ° 3N~400V-50Hz M 1~230V-50Hz (020 - 040)

NOTES

With DESUPERHEATER:

ANL 020-025-030-040 cooling only or heat pump

ANL 050-070-080-090

100-150-200 is possible only IN COOLING MODE FUNCTIONING MODE, HEATING MODE MUST BE INTERCEPTED

ANL DC (motor condenser with desuperheater for all sizes)

ANL DQ (high static pressure pump with desuperheater from 050 to 090)

With thermostatic valves for LOW TEMPERATURES:

ANL DZ-DY desuperheater and thermostatic valves for low temperatures

ANL HY/HZ (heat pumps with low temperature thermostatic valves)

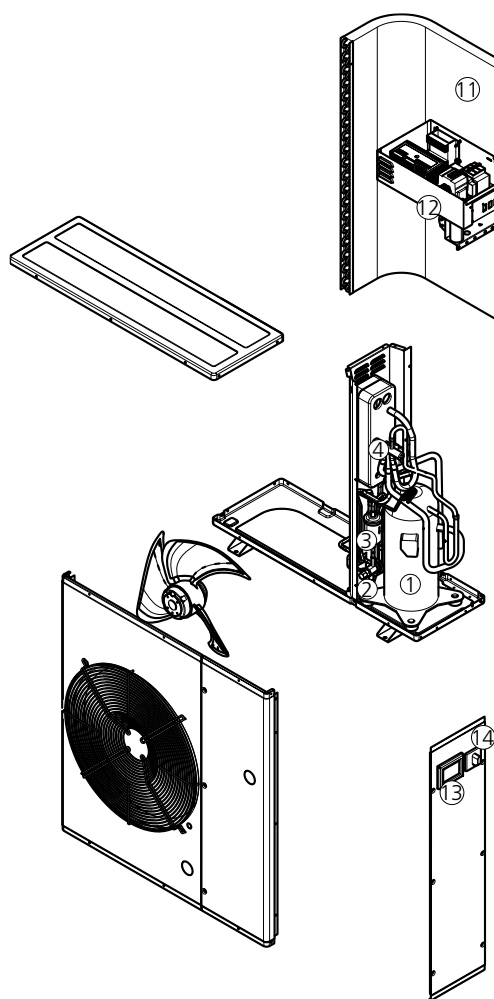
COOLING CIRCUIT:	COOLING ONLY	HEAT PUMP
Sump compressor resistance	•	•
High pressure pressure switch	•	•
Low pressure pressure switch	•	
High pressure transducer		•
Low pressure transducer		•
Hot gas injection		•

HYDRAULIC CIRCUIT:	"BASE"	PUMP	STORAGE TANK
Fitted water filter	•	•	•
Differential pressure switch	•	•	• (1)
Flow meter			• (2)
Submerged evaporator in tank			• (2)
Pump		•	•
Water storage tank			•
Expansion vessel		•	•
6 bar safety valve		•	•
Manual air vent		•	•

NOTES

(1) Sizes 050 ÷ 090

(2) Sizes 020 ÷ 040



2. DESCRIPTION OF THE COMPONENTS

2.1. COOLING CIRCUIT

Compressor

High efficient scroll type on anti-vibration mounts, activated by a 2-pole electric motor with internal circuit breaker protection.

They are supplied, as standard, with an electric anti-freeze resistance, powered automatically when the unit stops as long as the unit is live.

Air-side heat exchanger

Made with copper pipes and aluminium louvered fins blocked by mechanical expansion of the pipes. Provided with protective grid.

Water-side heat exchanger

Plate type, insulated externally with closed cell material to reduce heat loss. IN A VERSIONS in sizes 020 - 025 - 030 - 040 it is positioned inside the water storage tank.

Dehydrator filter

Mechanical type filter realised in ceramics and hygroscopic material, able to withhold impurities and any traces of humidity present in the cooling circuit.

Thermostatic valve

Mechanical valve, with external equaliser positioned at evaporator outlet, modulates the flow of gas to the evaporator, depending on the heat load, in order to ensure a correct heating level of the intake gas.

Liquid and pressing line taps

("C MOTOR CONDENSING" versions)
Allows interruption of the refrigerant in the case of extraordinary maintenance.

Solenoid valve of HOT GAS INJECTION

(for heat pump only.)

The valve positioned between the compressor and the thermostatic valve outlet controls:

- Defrosting cycles without having to reverse the cycle
- Safety capacity control if the pressure should rise on the pressing line

BY-PASS VALVE of HOT GAS INJECTION

Only D version

Device for hot gas injection of evaporator, mounted on versions with partial recovery.

Cycle reversing valve

(for heat pump only.)

Reverses the flow of refrigerant on variation of summer/winter mode and during any defrosting cycles.

One-way valve

Allows one-way flow of the refrigerant.

Liquid storage

(for heat pump only.)

Compensates the difference in volume between louvered fin coil and plate exchanger, withholding excess liquid during winter functioning.

2.2. FRAME AND FANS

Ventilation unit

Helical type, balanced statically and dynamically. Electric fans are protected electrically by magnet-circuit breakers and mechanically by anti-intrusion metal grids, according to IEC EN 60335-2-40 Standard.

Support frame

Made in hot galvanised sheet steel with suitable thickness and painted with polyester powders able to resist atmospheric agents through time.

2.3. HYDRAULIC CIRCUIT

Circulation pump (circulator)

P - N - A - Q versions.

Flow meter

Available in sizes "ANL 020 - 025 - 030 - 040 versions A with storage tank".

Positioned upstream from evaporator, it has the task of controlling that there is water circulation. If this is not the case, it blocks the unit

Differential pressure switch

Available in sizes:

"ANL 050 - 070 - 080 - 090 - 100 - 150 - 200 versions A with storage tank".

"ANL 020 - 025 - 030 - 040 - 050 - 070 - 080 - 090 - 100 - 150 - 200 standard and P with pump"

Positioned between inlet and outlet of evaporator. It has the task of controlling that there is water circulation, if this is not the case it blocks the unit.

KEY

- 1 Scroll compressor
- 2 Thermostatic valve
- 3 Dehydrator filter
- 4 Cycle reversing valve
- 5 Plate heat exchanger
- 6 Differential pressure switch
- 7 Circulation pump
- 8 Expansion vessel
- 9 Safety valve (6 bar)
- 10 Water filter
- 11 Exchanger coil
- 12 Electric box
- 13 MODUCONTROL display
- 14 Door-lock isolating switch

Water filter

This allows to block and eliminate any impurities present in the hydraulic circuits. It contains a filtering mesh with holes that do not exceed one millimetre. It is indispensable in order to prevent serious damage to the plate exchanger.

Storage tank

(only in versions A)

It is required to reduce the number of peaks of the compressor and to even the temperature of water to be sent to the utilities.

- For ANL 020 - 025 25 l.
- For ANL 030 - 040 35 l.
- For ANL 050 - 070 - 080 - 090 75 l
- For ANL 100 - 250 - 200 100 l

Desuperheater

Plate type (AISI 316) desuperheater, insulated externally with closed cell material to reduce heat loss. ONLY AVAILABLE FOR SIZES FROM 050 TO 200.

Vent valve

(only for versions with hydronic unit or with a pump)

Manual type, discharges any air pockets present. It is interrupted by a cock to facilitate any replacement.

Expansion vessel

(only in versions complete with storage tank or pump)
membrane type with nitrogen pre-load.

Hydraulic circuit safety valve

(only in versions with hydronic unit or pump).

Calibrated at 6 BAR and with conveyable discharge, intervenes by discharging the overpressure in the case of pressure anomalies.

2.4. CONTROL AND SAFETY COMPONENTS

Low pressure pressure switch (LP) Cooling Only (°)

With fixed calibration, placed on low pressure side of cooling circuit, inhibits functioning of compressor if abnormal work pressure occurs.

High pressure pressure switch (HP) Cooling Only (°)

Heat pump (H)

With fixed calibration, placed on high pressure side of cooling circuit, inhibits functioning of compressor if abnormal work pressure occurs.

Low pressure transducer (TBP)

Heat pump (H)

Placed on low pressure side of cooling circuit, it communicates the work pressure to the control board, generating a pre-alarm if abnormal pressure occurs.

High pressure transducer (TAP) cooling only (D)

Heat pump (H) (HD)

Placed on high pressure side of cooling circuit, it communicates the work pressure to the control board, generating a pre-alarm if abnormal pressure occurs.

2.5. ELECTRIC COMPONENTS

Electric Control Board

Contains the power section and the management of controls and safety devices. It is in compliance with the IEC 60204-1 Standard and the Directives regarding electromagnetic compatibility EMC 89/336/EEC and 92/31/EEC.

Door-lock isolating switch

THE electric control board can be accessed by removing the voltage. Act on the opening lever of the control board itself. This lever can be locked using one or more padlocks during maintenance interventions to prevent the machine being powered up accidentally.

Control board

Allows complete control of the appliance. For a more in-depth description please refer to the user manual.

- compressors magnet circuit-breaker protection.
- fans magnet-circuit breakers protection;
- auxiliary magnet circuit-breaker protection
- Heat exchanger inlet/outlet water temperature probes
- Gas temperature probe one on the for pressing line and coil
- External air temperature probe WITH DCPX ACCESSORY

2.6. ELECTRONIC MODU CONTROL ADJUSTMENT

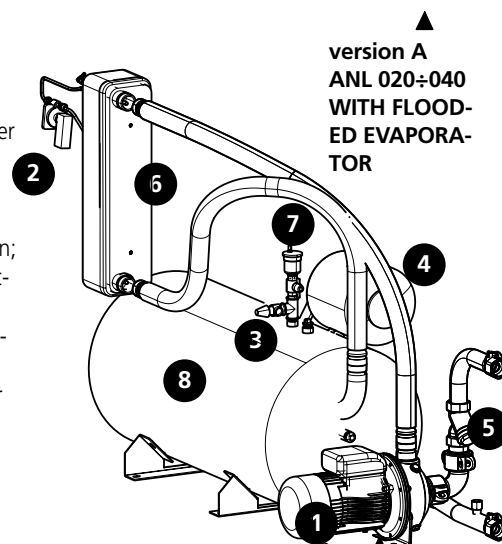
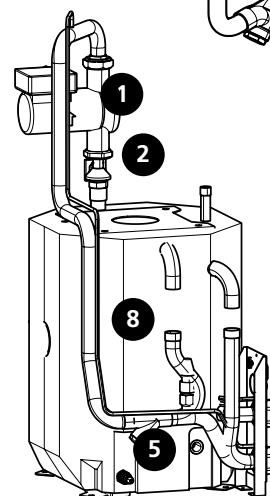
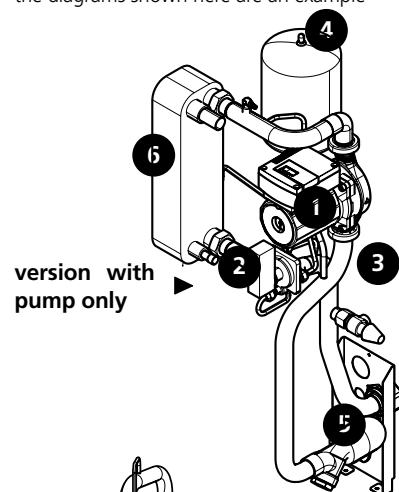
MODU_CONTROL

Temperature control of the outlet water with proportional-integral algorithm: maintains average outlet temperature at value set

- Self-adapting differential switch: guarantees minimum functioning times of the compressor in systems with low water content.
- Intelligent defrosting for pressure reduc-

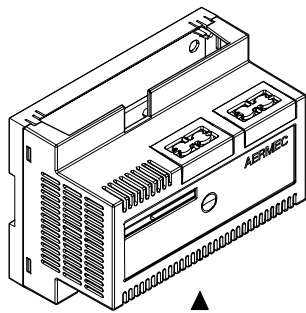
EXAMPLES OF HYDRAULIC CIRCUITS

the diagrams shown here are an example

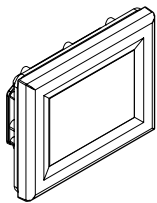


KEY

- 1 Circulator/pump
- 2 Differential pressure switch/flow meter (ANL 020÷040A)
- 3 Safety valve
- 4 Expansion vessel
- 5 Water filter
- 6 Plate heat exchanger (inside the storage tank in ANL 020÷040A)
- 7 Vent valve
- 8 Storage
- 9 Electric resistance (ACCESSORY)



▲
MODUCONTROL



▲
CONTROL PANEL

- tion: allows to determine when the coil is effectively defrosted, avoiding useless defrosting
- Hot gas injection defrosting: In this way the machine consumes less energy, increases heating capacity, keeps efficiency high and prevents temperature drops at the terminals (very important in plants with low water content
Emergency defrosting by cooling cycle reversing: to overcome more serious conditions
- Set-point compensation with external temperature (with external air probe accessory): reduces energy consumption
- Condensation check based on the pressure rather than on temperature for absolute stability (with DCPX revs. adjuster accessory)
- Inverse condensation check for the heat pump functioning mode also in summer (with DCPX revs. adjuster accessory).
- Pre-alarms with automatic reset: in the case of alarm, a certain number of re-starts are allowed before the definitive block.
- Alarm on the ΔT : to identify wiring errors (reverse rotation) or blocked cycle reversing valve.
- Compressor functioning hours count
- Compressor peak count.
- Historical alarms
- Autostart after voltage drop.
- Local or remote control

Display of unit status:

- a. Voltage presence
- b. Compressor ON/OFF
- c. Functioning mode (hot/cold)
- d. Alarm active

Probes, transducers and parameters display

- a. Water outlet
- b. Water inlet
- c. Coil temperature (heat pumps)
- d. Pressing line gas temperature
- e. External air temperature (heat pumps, cooling only with DCPX and probe)
- f. Flow pressure (heat pumps)
- g. Intake pressure (heat pumps)
- h. Temperature error (sum of the proportional and integral error)
- i. Stand-by times for start-up/switch-off of the compressor

Alarms management

- a. Low pressure
- b. High pressure (primary alarm: the pressure switch directly blocks power supply to compressor)
- c. High discharge temperature
- d. Anti-freeze
- e. Water differential flow meter/pressure switch
- f. Alarm on the ΔT

- Alarms with automatic reset with limited number of re-starts before blockin
 - ON/OFF from external contact
 - Change season from external contact
- For further information please refer to user manual

3. ACCESSORIES COMPATIBILITY TABLE

			020	025	030	040	050	070	080	090	100	150	200
SIMPLIFIED REMOTE PANEL.		MODELS											
PR3	Allows basic control functioning of unit (start-up/switch-off, change function mode, alarm summary). maximum installation space is of 150 m. with a 6 pole cable (cooling only versions) or 7 poles (heat pump) plus minimum section shielding of 0.5 mm ² .	(°) - H - C	•	•	•	•	•	•	•	•	•	•	•
CURRENT REDUCTION DEVICE		MODELS											
DRE	Allows the reduction of peak current necessary for the unit during start up phase. Available only for the 400V THREE-PHASE versions	(°) - H - C	-	-	-	-	5	5	5	5	5x2	5x2	5X2
CONDENSATION CONTROL DEVICE		MODELS											
DCPX	Low temperature device, it allows correct functioning IN COOLING MODE with external temperatures below 19°C and to -10 °C. THE DCPX ACCESSORY MUST BE USED ON HEAT PUMPS FOR THE PRODUCTION OF DHW.	(°) - C	50	50	50	50	50	50	50	50	52	52	52
		H	51	51	51	51	51	51	51	51	53	53	53
ANTI-VIBRATION MOUNTS		VERSION											
VT	Group of four anti-vibration mounts to be installed under the sheet steel base in the prepared points. They are used to reduce vibrations produced by the compressor whilst functioning.	(°) - H - HP - C	9	9	9	9	9	9	9	9	15	15	15
		A	9	9	9	9	15	15	15	15	15	15	15
STORAGE TANK ELECTRIC RESISTANCE		VERSION											
RA	Electrical resistance for storage tank (for A versions). Avoids freezing of water stored in the tank during winter breaks.	A	•	•	•	•	•	•	•	•	•	•	•
CONDENSATE DRIP TRAY		VERSION											
BDX		(°) / P	5	5	5	5	5	5	5	5	-	-	-
		A	5	5	5	5	6	6	6	6	-	-	-
ELECTRICAL EVAPORATOR RESISTANCE		VERSION											
KR	Electrical evaporator resistance (not available in A versions for models: 020 - 025 - 030 - 040) Electric resistance for heat plate exchanger. Avoids freezing of water stored in the tank during winter breaks.	(°) / P	2	2	2	2	2	2	2	2	2	2	2
		A	-	-	-	-	2	2	2	2	2	2	2

4. TECHNICAL DATA

COOLING				020°	025°	030°	040°	050°	070°	080°	090°	100°	150°	200°
Cooling capacity			kW	5,7	6,2	7,5	9,6	13,4	16,5	20,5	22,3	26,6	33,0	43,0
Total input power	(°)	kW	1,84	2,00	2,46	3,25	4,03	4,88	6,33	6,63	8,4	10,0	13,7	
	A/P	kW	1,99	2,15	2,61	3,40	4,30	5,15	6,60	6,90	9,2	11,5	15,2	
	Q/N	kW	N.A.	N.A.	N.A.	N.A.	4,48	5,33	6,78	7,08	9,4	11,3	15,0	
Evaporator water flow rate			l/h	980	1070	1290	1650	2310	2840	3530	3840	4580	5680	7400
Evaporator pressure drops			kPa	20,0	20,0	20,0	21,0	21,0	21,0	26,0	25,0	43,0	39,0	32,0
ENERGY INDEXES														
EER			W/W	3,10	3,10	3,05	2,95	3,33	3,38	3,24	3,36	3,16	3,30	3,14
ESEER				3,72	3,72	3,66	3,54	3,99	4,06	3,88	4,03	4,14	4,25	4,12
ELECTRICAL DATA														
Total input current(without circulation pump)	(°)	400V	A	3,7	4,2	4,70	6,2	8,7	9,7	12,2	12,8	16,7	18,8	25,7
		230V		9,4	10,0	13,0	16,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total input current(with circulation pump)	A/P	400V	A	4,7	5,2	5,70	7,2	10,7	11,7	14,2	14,8	17,9	20,8	27,7
		230V		10,4	11,0	14,0	17,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Q/N	400V		N.A.	N.A.	N.A.	N.A.	11,4	12,4	14,9	15,5	18,7	21,4	28,3
Maximum current (FLA)(without circulation pump)	(°)	400V	A	6	6	6,7	8,7	11,3	13,5	16,3	17,3	22,0	26,0	34,0
		230V		16,5	16,5	19,7	23,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Maximum current (FLA)(with circulation pump)	A/P	400V	A	7	7	7,7	9,7	13,3	15,5	18,3	19,3	23,4	28,8	36,8
		230V		17,5	17,5	20,7	24,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Q/N	400V		N.A.	N.A.	N.A.	N.A.	14,0	16,2	19,0	20,0	24,8	29,5	37,5
Peak current (LRA)(without circulation pump)	(°)	400V	A	26,5	32,5	35,7	48,7	65,3	75,3	102,3	96,3	76,0	87,0	117,0
		230V		59,5	62,5	83,7	98,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Peak current (LRA)(with circulation pump)	A/P	400V	A	27,5	33,5	36,7	49,7	67,3	77,3	104,3	98,3	77,4	89,8	119,8
		230V		60,5	63,5	84,7	99,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		400V		N.A.	N.A.	N.A.	N.A.	68,0	78,0	105,0	99,0	78,8	90,5	120,5
REFRIGERANT GAS LOAD														
R410A	(°) - P		Kg	1,250	1,300	1,560	2,00	3,480	3,790	3,730	4,700	8,0	11,5	12,0
	A			1,300	1,300	1,560	2,00	3,415	3,740	3,730	4,700	8,0	11,5	12,0
COMPRESSORS (SCROLL)														
Number/circuit			n°	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/1	2/1	2/1
Compressors sump resistance			n°xW	1x70	1x70	1x70	1x70	1x35	1x35	1x35	1x65	2X35	2X35	2X65
Capacity controls			%	0-100	0-100	0-100	0-100	0-100	0-100	0-100	0-100	0-50-100	0-50-100	0-50-100
FANS (AXIAL)														
Number			n°	1	1	1	1	2	2	2	2	2	2	2
Air flow rate			mc/h	2500	2500	3500	3500	7200	7200	7300	7200	13200	12000	12000
Input power			kW	0,085	0,085	0,14	0,14	0,28	0,28	0,28	0,28	0,6	0,6	0,6
Input current			A	0,45	0,45	0,66	0,66	1,32	1,32	1,32	1,32	2,6	2,6	2,6
EVAPORATOR (PLATES)														
Number			n°	1	1	1	1	1	1	1	1	1	1	1
CIRCULATION PUMP														
Input power			kW	0,15	0,15	0,15	0,15	0,27	0,27	0,27	0,27	0,6	1,0	1,0
Input current			A	1,04	1,04	1,04	1,04	1,95	1,95	1,95	1,95	1,2	2,0	2,0
Pressure availability useful to the system			kPa	60,0	60,0	59,0	55,0	82,0	80,0	69,0	66,0	84	115	90
LARGER CIRCULATION PUMP														
Input power			kW	N.A.	N.A.	N.A.	N.A.	0,45	0,45	0,45	0,45	1	1,3	1,3
Input current			A	N.A.	N.A.	N.A.	N.A.	2,7	2,7	2,7	2,7	2	2,6	2,6
Static pressure useful to the system			kPa	N.A.	N.A.	N.A.	N.A.	160	158	144	140			
STORAGE TANK														
Water storage			l	25	25	35	35	75	75	75	75	100	100	100
HYDRAULIC CONNECTIONS														
Inlet for water circulation			Ø	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼
Outlet for water circulation			Ø	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼	1 "¼
NOISE DATA														
Sound power			dB(A)	61,0	61,0	68,0	68,0	69,0	69,0	69,0	68,0	76,0	77,0	78,0
Sound Pressure			dB(A)	30,0	30,0	37,0	37,0	38,0	38,0	38,0	37,0	44,0	45,0	46,0

IN COOLING MODE

- Water inlet temperature	12 °C
- Outlet water temperature	7 °C
- External air temperature	35 °C
- Δt	5°C

Sound power

Aermec determines sound power values in agreement with the 9614 Standard, in compliance with that requested by Eurovent certification.

Sound Pressure

Sound pressure measured in free field conditions with reflective surface (directivity factor Q=2) at 10 mt distance from external surface of unit, in compliance with ISO 3744 regulations.

COOLING				020H	025H	030H	040H	050H	070H	080H	090H	100H	150H	200H
Cooling capacity			kW	5,7	6,2	7,5	9,6	13,4	16,5	20,5	22,3	26,0	32,0	42,0
Total input power	(°)		kW	1,84	2,00	2,46	3,25	4,03	4,88	6,33	6,63	8,6	10,2	13,9
	A/P		kW	1,99	2,15	2,61	3,40	4,30	5,15	6,60	6,90	9,2	11,2	14,9
	Q/N		kW	-	-	-	-	4,48	5,33	6,78	7,08	9,6	11,5	15,2
Evaporator water flow rate			l/h	980	1070	1290	1650	2310	2840	3530	3840	4470	5500	7220
Evaporator pressure drops			kPa	29,0	30,0	30,0	27,0	30,0	30,0	36,0	50,0	41,0	37,0	31,0
HEATING														
Heating capacity			kW	6,2	7,0	8,4	10,6	14,0	17,3	22,2	24,2	29,0	35	46
Total input power	(°)		kW	1,91	2,12	2,62	3,18	4,30	4,90	6,30	6,85	8,6	10,1	13,3
	A/P		kW	2,06	2,27	2,77	3,33	4,57	5,17	6,57	7,12	9,2	11,1	14,3
	Q/N		kW	-	-	-	-	4,75	5,35	6,75	7,30	9,6	11,4	14,6
Evaporator water flow rate			l/h	1070	1200	1450	1820	2410	2980	3820	4160	4990	6020	7910
Evaporator pressure drops			kPa	32,0	35,0	35,0	30,0	30,0	30,0	38,0	53,0	52,0	44,0	37,0
ENERGY INDEXES														
EER			W/W	3,10	3,10	3,05	2,95	3,33	3,38	3,24	3,36	3,03	3,14	3,02
COP			W/W	3,25	3,30	3,21	3,33	3,26	3,53	3,52	3,53	3,39	3,47	3,46
ESEER				3,72	3,72	3,66	3,54	3,99	4,06	3,88	4,03	3,98	4,11	3,95
ELECTRICAL DATA														
Total input current in COOLING mode (version without circulation pump)	(°)	400V	A	3,7	4,2	4,70	6,2	8,7	9,7	12,2	12,8	17,0	19,2	26,2
		230V		9,4	10,0	13,0	16,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total input current in COOLING mode (version with circulation pump)	A/P	400V	A	4,7	5,2	5,70	7,2	10,7	11,7	14,2	14,8	18,2	21,2	28,2
		230V		9,4	10,0	13,0	16,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total input current in HEATING mode (version without circulation pump)	(°)	400V	A	N.A.	N.A.	N.A.	N.A.	11,4	12,4	14,9	15,5	19	21,8	28,8
		230V		3,8	4,4	5,4	6,8	9,5	10,3	12,9	13,8	17,0	19,0	25,0
Total input current in HEATING mode (version with circulation pump)	A/P	400V	A	10,4	11,0	14,0	17,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		230V		4,8	5,4	6,4	7,8	11,5	12,3	14,9	15,8	18,2	21,0	27,0
Maximum current (FLA) (version without circulation pump)	(°)	400V	A	10,4	12,3	14,0	19,3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		230V		N.A.	N.A.	N.A.	N.A.	12,2	13,0	15,6	16,5	19,0	21,6	27,6
Maximum current (FLA) (version with circulation pump)	A/P	400V	A	6	6	6,7	8,7	11,3	13,5	16,3	17,3	22,0	26,0	34,0
		230V		16,5	16,5	19,7	23,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Peak current (LRA) (version without circulation pump)	(°)	400V	A	7	7	7,7	9,7	13,3	15,5	18,3	19,3	23,4	28,8	36,8
		230V		17,5	17,5	20,7	24,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Peak current (LRA) (version with circulation pump)	A/P	400V	A	N.A.	N.A.	N.A.	N.A.	14,0	16,2	19,0	20,0	23,4	28,8	36,8
		230V		26,5	32,5	35,70	48,7	65,3	75,3	102,3	96,3	76,0	87,0	117,0
Peak current (LRA) (version with circulation pump)	Q/N	400V	A	59,5	62,5	83,70	98,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		230V		27,5	33,5	36,70	49,7	67,3	77,3	104,3	98,3	77,4	89,8	119,8
	Q/N	400V	A	60,5	63,5	84,7	99,7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		230V		N.A.	N.A.	N.A.	N.A.	68,0	78,0	105,0	99,0	78,8	90,5	120,5
COMPRESSORS (SCROLL)														
Number/circuit			n°	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/1	2/1	2/1
Compressors sump resistance			n°xW	1x70	1x70	1x70	1x70	1x35	1x35	1x35	1x65	2X35	2X35	2X65
Capacity controls			%	0-100	0-100	0-100	0-100	0-100	0-100	0-100	0-100	0-50-100	0-50-100	0-50-100
FANS (AXIAL)														
Number			n°	1	1	1	1	2	2	2	2	2	2	2
Air flow rate			mc/h	2500	2500	3500	3500	7200	7200	7300	7200	13200	12000	12000
Input power			kW	0,085	0,085	0,14	0,14	0,28	0,28	0,28	0,28	0,6	0,6	0,6
Input current			A	0,45	0,45	0,66	0,66	1,32	1,32	1,32	1,32	2,6	2,6	2,6
EVAPORATORS (HEAT PLATE)														
Number			n°	1	1	1	1	1	1	1	1	1	1	1
REFRIGERANT GAS LOAD														
R410A	H/HP		Kg	1,500	1,500	1,800	2,060	4,150	4,100	4,140	5,080	12,7	17,0	17,0
	HA			1,500	1,500	1,800	2,060	4,150	4,150	4,140	5,080	12,7	17,0	17,0
CIRCULATION PUMP														
Input power			kW	0,15	0,15	0,15	0,15	0,27	0,27	0,27	0,27	0,6	1,0	1,0
Input current			A	1,04	1,04	1,04	1,04	1,95	1,95	1,95	1,95	1,2	2,0	2,0
Static pressure useful to the system			kPa	60,0	60,0	59,0	55,0	82,0	80,0	69,0	66,0	84,0	115,0	90,0
LARGER CIRCULATION PUMP														
Input power			kW	N,D,	N,D,	N,D,	N,D,	0,45	0,45	0,45	0,45	1	1,3	1,3
Input current			A	N,D,	N,D,	N,D,	N,D,	2,7	2,7	2,7	2,7	2	2,6	2,6
Static pressure useful to the system			kPa	N,D,	N,D,	N,D,	N,D,	160	158	144	140			
STORAGE TANK														
Water storage			l	25	25	35	35	75	75	75	75	100	100	100
HYDRAULIC CONNECTIONS														
Inlet for water circulation			Ø	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼
Outlet for water circulation			Ø	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼	1"¼
NOISE DATA														
Sound power			dB(A)	61,0	61,0	68,0	68,0	69,0	69,0	69,0	68,0	76,0	77,0	78,0
Sound Pressure			dB(A)	30,0	30,0	37,0	37,0	38,0	38,0	38,0	37,0	44,0	45,0	46,0

IN COOLING MODE

- Water inlet temperature
- Outlet water temperature
- External air temperature
- Δt

12 °C
7 °C
35 °C
5 °C

- Temperatura acqua uscita
- External air temperature
- Δt

45 °C
b.s. 7 °C/b.u. 6 °C
5 °C

Sound power

Aermec determines sound power values in agreement with the 9614 Standard, in compliance with that requested by Eurovent certification.

Sound Pressure

Sound pressure measured in free field conditions with reflective surface (directivity factor Q=2) at 10 mt distance from external surface of unit, in compliance with ISO 3744 regulations.

IN HEATING MODE

- Water inlet temperature

40 °C

COOLING				020C	025C	030C	040C	050C	070C	080C	090C	100C	150C	200C
Cooling capacity			kW	5,70	6,00	7,50	9,60	13,70	16,80	20,80	22,50	26,90	33,40	43,70
Total input power	(°)		kW	1,85	2,05	2,50	3,30	4,10	5,00	6,50	6,80	8,60	10,20	14,10

ENERGY INDEXES														
EER			W/W	3,08	2,93	3,00	2,91	3,34	3,36	3,20	3,31	3,13	3,27	3,10

ELECTRICAL DATA														
Total input current	(°)	400V	A	3,7	4,2	4,70	6,3	8,9	9,9	12,4	13,1	17,1	19,3	26,4
		230V		9,5	10,0	13,0	16,3	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,
Maximum current (FLA)	(°)/H	400V	A	6	6	6,7	8,7	11,3	13,5	16,3	17,3	22,0	26,0	34,0
		230V		16,5	16,5	19,7	23,7	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,
Peak current (LRA)	(°)/H	400V	A	26,5	32,5	35,7	48,7	65,3	75,3	102,3	96,3	76,0	87,0	117,0
		230V		59,5	62,5	83,7	98,7	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,	N,D,

COMPRESSORS (SCROLL)														
Number/circuit			n°	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/1	2/1	2/1
Input current			A	3,2	3,7	4,0	5,5	7,4	8,4	10,9	11,5			
Compressors sump resistance			n°xW	1x70	1x70	1x70	1x70	1x35	1x35	1x35	1x65	2X35	2X35	2X65
Capacity controls			%	1-100	1-100	1-100	1-100	1-100	1-100	1-100	1-100	0-50-100	0-50-100	0-50-100

FANS (AXIAL)														
Number			n°	1	1	1	1	2	2	2	2	2	2	2
Air flow rate			mc/h	2500	2500	3500	3500	7200	7200	7300	7200	13200	12000	12000
Input power			kW	0,085	0,085	0,14	0,14	0,28	0,28	0,28	0,28	0,6	0,6	0,6
Input current			A	0,45	0,45	0,66	0,66	1,32	1,32	1,32	1,32	2,6	2,6	2,6

REFRIGERANT GAS LOAD														
R410A			Kg	1,250	1,300	1,560	2,00	3,480	3,790	3,730	4,700			
COOLING CONNECTIONS														
Gas line			Ø	15,88	15,88	15,88	15,88	22	22	22	28	28	28	35
Liquid line			Ø	9,52	9,52	12,7	12,7	15,88	15,88	15,88	15,88	15,88	15,88	15,88

NOISE DATA														
Sound power			dB(A)	61,0	61,0	68,0	68,0	69,0	69,0	69,0	68,0	76,0	77,0	78,0
Sound Pressure			dB(A)	30,0	30,0	37,0	37,0	38,0	38,0	38,0	37,0	44,0	45,0	46,0

Nominal conditions reference

IN COOLING MODE

- Evaporation temperature 5 °C
- External air temperature 35 °C

Sound power

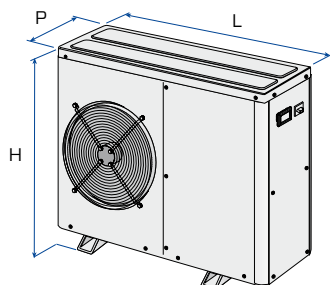
Aermec determines sound power values in agreement with the 9614 Standard, in compliance with that requested by Eurovent certification.

(1) Sound Pressure

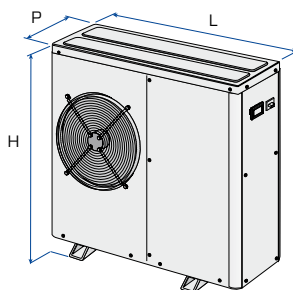
Sound pressure measured in free field conditions with reflective surface (directivity factor Q=2) at 10mt distance from external surface of unit, in compliance with ISO 3744 regulations.

5. DIMENSIONS

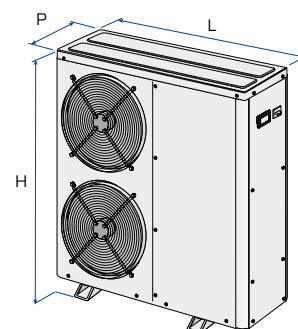
ANL "020 - 025 ° H BASE, P and C "



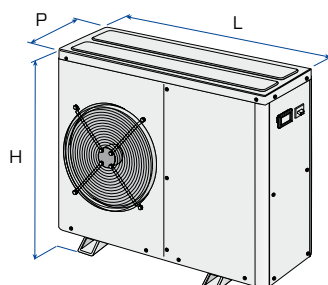
ANL "030 - 040 ° H BASE, P and C "



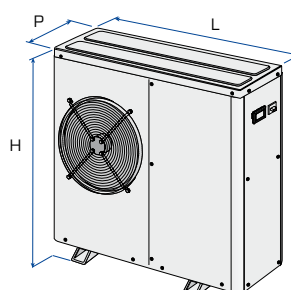
ANL "050 - 070 - 080 - 090 ° H BASE, P and C "



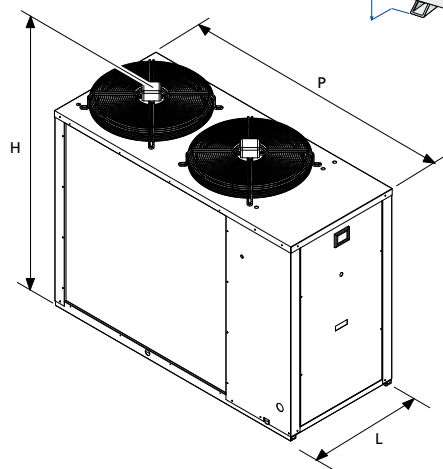
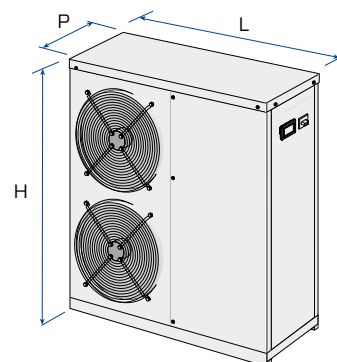
ANL "020 - 025 ° H A "



ANL "030 - 040 ° H A "



ANL "050 - 070 - 080 - 090 ° H A/Q "

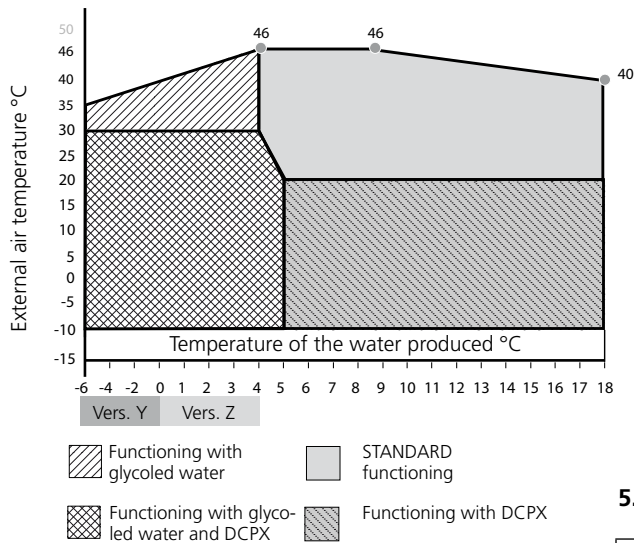


ANL "100 - 150 - 200 "

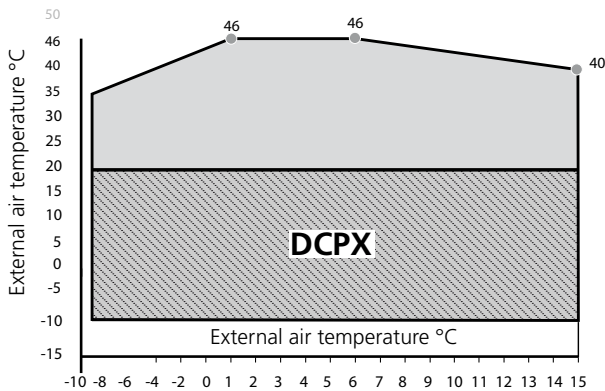
Cooling only models / heat pump	Vers.		020	025	030	040	050	070	080	090	100	150	200
Height (H)	(°)/P	mm	868	868	1000	1000	1252	1252	1252	1252	1345	1345	1345
	A		868	868	1015	1015	1281	1281	1281	1281			
	Q		-	-	-	-	1281	1281	1281	1281			
Width (W)	(°)/P	mm	900	900	900	900	1124	1124	1124	1124	750	750	750
	A		1124	1124	1124	1124	1165	1165	1165	1165			
	Q		-	-	-	-	1165	1165	1165	1165			
Depth (P) without feet/with feet	(°)/P	mm	310/354	310/354	310/354	310/354	384/428	384/428	384/428	384/428	1750	1750	1750
	A		384/428	384/428	384/428	384/428	550	550	550	550			
	Q		-	-	-	-	550	550	550	550			
Weight	(°)/P	Kg	75/77	75/77	86/91	86/91	120/127	120/127	156/163	156/163	270/ 288	293/314	329/350
	A/Q		99/-	99/-	103/-	103/-	147/151	147/151	183/187	183/187			

Motor condensing models	Vers.		020C	025C	030C	040C	050C	070C	080C	090C			
Height		mm	868	868	1000	1000	1252	1252	1252	1252			
Width		mm	900	900	900	900	1124	1124	1124	1124			
Depth		mm	310	310	310	310	384	384	384	384			
Weight		kg	70	70	78	78	110	110	141	141			

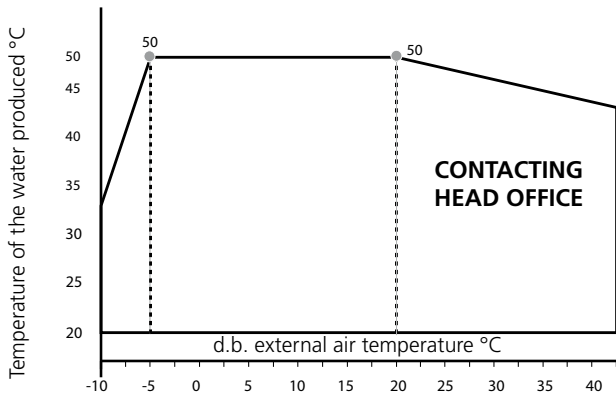
5.1. COOLING MODE FUNCTIONING



5.2. COOLING MODE FUNCTIONING FOR MOTOR CONDENSING C VERSIONS



5.3. HEATING MODE FUNCTIONING FOR HEAT PUMPS



6. OPERATIONAL LIMITS

The units, in standard configuration, are not suitable for installation in salty environments. The maximum and minimum limits for water flow rate to the heat exchanger are indicated by the pressure drop diagram curves. For functioning limits, please refer to the diagrams below, valid for $\Delta t = 5^\circ\text{C}$.

ATTENTION:
Use of produced water with a temperature lower than 4°C is only allowed by specific envisioned versions. (Versions Z-Y).

If the machine is to be operated out of the limits indicated in the diagram, please contact AERMEC technical-sales dept.

If it is installed in a particularly windy zone, a windbreak should be provided to avoid unstable operation of the DCPX device.

5.4. PROJECT DATA

		High pressure side	Low pressure side
Acceptable maximum pressure	bar	42	25
Acceptable maximum temperature	$^\circ\text{C}$	120	52
Acceptable minimum temperature	$^\circ\text{C}$	-10	-16

7. PERFORMANCE IN COOLING MODEMODE

7.1. STANDARD ANL 020 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermostatic valve Y	-6	5.07	1.23	4.79	1.42	4.49	1.61	4.18	1.78	-	-	-	-
	-4	5.37	1.24	5.07	1.43	4.75	1.62	4.43	1.79	-	-	-	-
	-2	5.66	1.25	5.34	1.44	5.01	1.62	4.68	1.79	4.34	1.94	-	-
	0	5.95	1.26	5.61	1.44	5.26	1.63	4.91	1.80	4.56	1.94	-	-
With thermostatic valve Z	2	6.23	1.26	5.87	1.45	5.51	1.63	5.15	1.81	4.78	1.95	-	-
	4	6.50	1.27	6.13	1.45	5.75	1.64	5.38	1.81	5.00	1.96	4.63	2.07
	6	6.76	1.27	6.38	1.46	5.99	1.65	5.60	1.82	5.21	1.98	4.83	2.09
With thermostatic valve Standard	7	6.89	1.29	6.50	1.47	6.11	1.66	5.70	1.84	5.32	1.98	4.93	2.09
	8	7.02	1.30	6.63	1.48	6.23	1.67	5.82	1.84	5.42	1.99	5.03	2.10
	10	7.28	1.31	6.87	1.50	6.46	1.68	6.04	1.86	5.63	2.00	-	-
	12	7.53	1.32	7.11	1.51	6.68	1.70	6.26	1.87	5.84	2.01	-	-
	14	7.78	1.34	7.34	1.52	6.91	1.71	6.47	1.88	6.04	2.02	-	-
	16	8.02	1.35	7.58	1.53	7.13	1.72	6.68	1.89	6.24	2.03	-	-
	18	8.26	1.36	7.81	1.55	7.35	1.74	6.89	1.90	6.45	2.05	-	-

7.2. STANDARD ANL 025 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermostatic valve Y	-6	5.5	1.34	5.2	1.55	4.9	1.75	4.6	1.94	-	-	-	-
	-4	5.8	1.35	5.5	1.55	5.2	1.76	4.8	1.94	-	-	-	-
	-2	6.2	1.36	5.8	1.56	5.5	1.76	5.1	1.95	4.7	2.11	-	-
	0	6.5	1.37	6.1	1.57	5.7	1.77	5.3	1.96	5.0	2.11	-	-
With thermostatic valve Z	2	6.8	1.37	6.4	1.57	6.0	1.78	5.6	1.96	5.2	2.12	-	-
	4	7.1	1.38	6.7	1.58	6.3	1.78	5.8	1.97	5.4	2.13	5.0	2.25
	6	7.4	1.38	6.9	1.59	6.5	1.79	6.1	1.98	5.7	2.15	5.3	2.27
With thermostatic valve Standard	7	7.5	1.40	7.1	1.60	6.6	1.80	6.2	2.00	5.8	2.15	5.4	2.28
	8	7.6	1.41	7.2	1.61	6.8	1.81	6.3	2.00	5.9	2.16	5.5	2.28
	10	7.9	1.43	7.5	1.63	7.0	1.83	6.6	2.02	6.1	2.18	-	-
	12	8.2	1.44	7.7	1.64	7.3	1.84	6.8	2.03	6.3	2.19	-	-
	14	8.5	1.45	8.0	1.66	7.5	1.86	7.0	2.04	6.6	2.20	-	-
	16	8.7	1.46	8.2	1.67	7.8	1.87	7.3	2.06	6.8	2.21	-	-
	18	9.0	1.48	8.5	1.68	8.0	1.89	7.5	2.07	7.0	2.22	-	-

7.3. STANDARD ANL 030 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermostatic valve Y	-6	6.7	1.65	6.3	1.90	5.9	2.15	5.5	2.39	-	-	-	-
	-4	7.1	1.66	6.7	1.91	6.3	2.16	5.8	2.39	-	-	-	-
	-2	7.5	1.67	7.0	1.92	6.6	2.17	6.2	2.40	5.7	2.59	-	-
	0	7.8	1.68	7.4	1.93	6.9	2.18	6.5	2.41	6.0	2.60	-	-
With thermostatic valve Z	2	8.2	1.69	7.7	1.94	7.3	2.18	6.8	2.41	6.3	2.61	-	-
	4	8.5	1.70	8.1	1.94	7.6	2.19	7.1	2.43	6.6	2.62	6.1	2.77
	6	8.9	1.70	8.4	1.95	7.9	2.20	7.4	2.44	6.9	2.64	6.4	2.79
With thermostatic valve Standard	7	9.1	1.72	8.6	1.97	8.0	2.22	7.5	2.46	7.0	2.65	6.5	2.80
	8	9.2	1.74	8.7	1.98	8.2	2.23	7.7	2.46	7.1	2.66	6.6	2.81
	10	9.6	1.76	9.0	2.00	8.5	2.25	7.9	2.48	7.4	2.68	-	-
	12	9.9	1.77	9.4	2.02	8.8	2.27	8.2	2.50	7.7	2.69	-	-
	14	10.2	1.79	9.7	2.04	9.1	2.28	8.5	2.51	7.9	2.71	-	-
	16	10.6	1.80	10.0	2.05	9.4	2.30	8.8	2.53	8.2	2.72	-	-
	18	10.9	1.82	10.3	2.07	9.7	2.32	9.1	2.55	8.5	2.73	-	-

IN COOLING MODE

- Water inlet temperature
- Outlet water temperature
- External air temperature
- Δt

12 °C
7 °C
35 °C
5 °C

Pc Cooling capacity (kW)
Pe Input power (kW)

7.7. STANDARD ANL 040 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	8.5	2.18	8.1	2.51	7.6	2.84	7.0	3.15	-	-	-	-
	-4	9.0	2.20	8.5	2.53	8.0	2.85	7.5	3.16	-	-	-	-
	-2	9.5	2.21	9.0	2.54	8.4	2.86	7.9	3.17	7.3	3.42	-	-
With thermo-static valve Z	0	10.0	2.22	9.4	2.55	8.9	2.87	8.3	3.18	7.7	3.43	-	-
	2	10.5	2.23	9.9	2.56	9.3	2.88	8.7	3.19	8.1	3.45	-	-
	4	10.9	2.24	10.3	2.57	9.7	2.90	9.1	3.20	8.4	3.47	7.8	3.66
With thermo-static valve Standard	6	11.4	2.25	10.7	2.58	10.1	2.91	9.4	3.22	8.8	3.49	8.1	3.69
	7	11.6	2.28	11.0	2.60	10.3	2.93	9.6	3.25	9.0	3.50	8.3	3.70
	8	11.8	2.29	11.2	2.62	10.5	2.94	9.8	3.26	9.1	3.51	8.5	3.71
	10	12.3	2.32	11.6	2.65	10.9	2.97	10.2	3.28	9.5	3.54	-	-
	12	12.7	2.34	12.0	2.67	11.3	3.00	10.5	3.30	9.8	3.56	-	-
	14	13.1	2.36	12.4	2.69	11.6	3.02	10.9	3.32	10.2	3.57	-	-
	16	13.5	2.38	12.8	2.71	12.0	3.04	11.3	3.34	10.5	3.59	-	-
	18	13.9	2.40	13.1	2.74	12.4	3.07	11.6	3.36	10.9	3.61	-	-

7.8. STANDARD ANL 050 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	11.9	2.70	11.3	3.11	10.6	3.53	9.8	3.91	-	-	-	-
	-4	12.6	2.72	11.9	3.13	11.2	3.54	10.4	3.92	-	-	-	-
	-2	13.3	2.74	12.6	3.15	11.8	3.55	11.0	3.93	10.2	4.24	-	-
With thermo-static valve Z	0	14.0	2.76	13.2	3.16	12.4	3.56	11.6	3.94	10.7	4.26	-	-
	2	14.6	2.77	13.8	3.17	13.0	3.58	12.1	3.96	11.2	4.28	-	-
	4	15.3	2.78	14.4	3.18	13.5	3.59	12.6	3.97	11.8	4.30	10.9	4.54
With thermo-static valve Standard	6	15.9	2.79	15.0	3.20	14.1	3.61	13.2	4.00	12.3	4.33	11.4	4.58
	7	16.2	2.82	15.3	3.22	14.4	3.63	13.4	4.03	12.5	4.34	11.6	4.59
	8	16.5	2.84	15.6	3.25	14.6	3.65	13.7	4.04	12.7	4.36	11.8	4.60
	10	17.1	2.88	16.1	3.28	15.2	3.69	14.2	4.07	13.2	4.39	-	-
	12	17.7	2.90	16.7	3.31	15.7	3.72	14.7	4.09	13.7	4.41	-	-
	14	18.3	2.92	17.3	3.34	16.2	3.74	15.2	4.12	14.2	4.43	-	-
	16	18.9	2.95	17.8	3.36	16.8	3.77	15.7	4.14	14.7	4.45	-	-
	18	19.4	2.98	18.3	3.39	17.3	3.80	16.2	4.17	15.2	4.48	-	-

7.9. STANDARD ANL 070 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	14.7	3.27	13.9	3.77	13.0	4.27	12.1	4.73	-	-	-	-
	-4	15.6	3.30	14.7	3.79	13.8	4.29	12.8	4.74	-	-	-	-
	-2	16.4	3.32	15.5	3.81	14.5	4.30	13.5	4.76	12.6	5.14	-	-
With thermo-static valve Z	0	17.2	3.34	16.2	3.83	15.2	4.32	14.2	4.77	13.2	5.16	-	-
	2	18.0	3.35	17.0	3.84	16.0	4.33	14.9	4.79	13.8	5.18	-	-
	4	18.8	3.37	17.7	3.85	16.7	4.35	15.6	4.81	14.5	5.21	13.4	5.50
With thermo-static valve Standard	6	19.6	3.38	18.5	3.87	17.3	4.37	16.2	4.84	15.1	5.24	14.0	5.54
	7	20.0	3.42	18.8	3.90	17.7	4.39	16.5	4.88	15.4	5.25	14.3	5.56
	8	20.3	3.44	19.2	3.93	18.0	4.42	16.9	4.89	15.7	5.28	14.6	5.58
	10	21.1	3.48	19.9	3.97	18.7	4.47	17.5	4.92	16.3	5.31	-	-
	12	21.8	3.51	20.6	4.01	19.3	4.50	18.1	4.96	16.9	5.34	-	-
	14	22.5	3.54	21.3	4.04	20.0	4.53	18.7	4.98	17.5	5.37	-	-
	16	23.2	3.57	21.9	4.07	20.6	4.56	19.3	5.02	18.1	5.39	-	-
	18	23.9	3.60	22.6	4.11	21.3	4.60	20.0	5.05	18.7	5.42	-	-

IN COOLING MODE

- Water inlet temperature 12 °C
- Outlet water temperature 7 °C
- External air temperature 35 °C
- Δt 5°C

Pc Cooling capacity (kW)

Pe Input power (kW)

7.10. STANDARD ANL 080 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	18.2	4.24	17.2	4.89	16.1	5.54	15.0	6.14	-	-	-	-
	-4	19.3	4.28	18.2	4.92	17.1	5.56	15.9	6.15	-	-	-	-
	-2	20.4	4.31	19.2	4.94	18.0	5.58	16.8	6.17	15.6	6.67	-	-
	0	21.4	4.33	20.2	4.96	18.9	5.60	17.7	6.19	16.4	6.69	-	-
With thermo-static valve Z	2	22.4	4.35	21.1	4.98	19.8	5.62	18.5	6.21	17.2	6.72	-	-
	4	23.4	4.37	22.0	5.00	20.7	5.64	19.3	6.24	18.0	6.75	16.6	7.13
	6	24.3	4.38	22.9	5.02	21.5	5.67	20.1	6.28	18.7	6.80	17.4	7.19
With thermo-static valve Standard	7	24.8	4.43	23.4	5.06	22.0	5.70	20.5	6.33	19.1	6.82	17.7	7.21
	8	25.3	4.47	23.8	5.10	22.4	5.74	20.9	6.34	19.5	6.85	18.1	7.23
	10	26.2	4.52	24.7	5.15	23.2	5.79	21.7	6.39	20.2	6.89	-	-
	12	27.1	4.56	25.6	5.20	24.0	5.84	22.5	6.43	21.0	6.93	-	-
	14	28.0	4.59	26.4	5.24	24.8	5.88	23.3	6.47	21.7	6.96	-	-
	16	28.9	4.63	27.2	5.28	25.6	5.92	24.0	6.51	22.5	6.99	-	-
	18	29.7	4.68	28.1	5.33	26.4	5.97	24.8	6.55	23.2	7.04	-	-

7.11. STANDARD ANL 090 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	19.8	4.44	18.7	5.12	17.6	5.80	16.4	6.43	-	-	-	-
	-4	21.0	4.48	19.8	5.15	18.6	5.82	17.3	6.44	-	-	-	-
	-2	22.2	4.51	20.9	5.18	19.6	5.84	18.3	6.46	17.0	6.98	-	-
	0	23.3	4.53	22.0	5.20	20.6	5.86	19.2	6.48	17.9	7.00	-	-
With thermo-static valve Z	2	24.4	4.55	23.0	5.22	21.6	5.88	20.1	6.51	18.7	7.04	-	-
	4	25.4	4.57	24.0	5.24	22.5	5.91	21.0	6.54	19.6	7.07	18.1	7.47
	6	26.5	4.59	25.0	5.26	23.4	5.94	21.9	6.58	20.4	7.12	18.9	7.53
With thermo-static valve Standard	7	27.0	4.64	25.4	5.30	23.9	5.97	22.3	6.63	20.8	7.14	19.3	7.55
	8	27.5	4.68	25.9	5.34	24.4	6.01	22.8	6.64	21.2	7.17	19.7	7.57
	10	28.5	4.73	26.9	5.40	25.3	6.07	23.6	6.69	22.0	7.22	-	-
	12	29.5	4.77	27.8	5.45	26.1	6.11	24.5	6.73	22.8	7.26	-	-
	14	30.4	4.81	28.7	5.49	27.0	6.16	25.3	6.77	23.6	7.29	-	-
	16	31.4	4.85	29.6	5.53	27.9	6.20	26.1	6.81	24.4	7.33	-	-
	18	32.3	4.90	30.5	5.58	28.7	6.25	27.0	6.86	25.2	7.37	-	-

7.12. STANDARD ANL 100 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	23.7	5.62	22.4	6.48	21.0	7.35	19.5	8.13				
	-4	25.1	5.66	23.7	6.53	22.2	7.40	20.7	8.17				
	-2	26.4	5.71	24.9	6.57	23.4	7.40	21.8	8.17	20.3	8.86		
	0	27.8	5.75	26.2	6.57	24.5	7.44	22.9	8.22	21.3	8.86		
With thermo-static valve Z	2	29.1	5.75	27.4	6.62	25.7	7.44	24.0	8.26	22.3	8.90		
	4	30.3	5.80	28.6	6.62	26.8	7.49	25.1	8.26	23.3	8.95	21.6	9.45
	6	31.5	5.80	29.8	6.67	28.0	7.53	26.1	8.31	24.3	9.04	22.5	9.54
With thermo-static valve Standard	7	32.2	5.89	30.3	6.71	28.5	7.58	26.6	8.40	24.8	9.04	23.0	9.54
	8	32.8	5.93	30.9	6.76	29.1	7.62	27.2	8.40	25.3	9.08	23.5	9.59
	10	34.0	5.98	32.1	6.85	30.1	7.67	28.2	8.49	26.3	9.13		
	12	35.1	6.03	33.2	6.89	31.2	7.76	29.2	8.54	27.3	9.18		
	14	36.3	6.12	34.3	6.94	32.2	7.81	30.2	8.58	28.2	9.22		
	16	37.4	6.16	35.4	6.98	33.3	7.85	31.2	8.63	29.1	9.27		
	18	38.5	6.21	36.4	7.08	34.3	7.94	32.2	8.67	30.1	9.36		

IN COOLING MODE

- Water inlet temperature 12 °C
- Outlet water temperature 7 °C
- External air temperature 35 °C
- Δt 5°C

Pc Cooling capacity (kW)

Pe Input power (kW)

7.15. STANDARD ANL 150 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	29.4	6.68	27.7	7.72	26.0	8.75	24.2	9.67	-	-	-	-
	-4	31.1	6.74	29.4	7.77	27.5	8.80	25.6	9.73	-	-	-	-
	-2	32.8	6.79	30.9	7.83	29.0	8.80	27.1	9.73	25.1	10.54	-	-
	0	34.4	6.85	32.5	7.83	30.5	8.86	28.4	9.78	26.4	10.54	-	-
With thermo-static valve Z	2	36.1	6.85	34.0	7.88	31.9	8.86	29.8	9.84	27.7	10.60	-	-
	4	37.6	6.90	35.5	7.88	33.3	8.91	31.1	9.84	28.9	10.65	26.8	11.25
With thermo-static valve Standard	6	39.1	6.90	36.9	7.93	34.7	8.97	32.4	9.89	30.2	10.76	28.0	11.36
	7	39.9	7.01	37.6	7.99	35.4	9.02	33.0	10.00	30.8	10.76	28.5	11.36
	8	40.6	7.07	38.4	8.04	36.1	9.08	33.7	10.00	31.4	10.82	29.1	11.41
	10	42.1	7.12	39.8	8.15	37.4	9.13	35.0	10.11	32.6	10.87	-	-
	12	43.6	7.17	41.2	8.21	38.7	9.24	36.2	10.16	33.8	10.92	-	-
	14	45.0	7.28	42.5	8.26	40.0	9.29	37.5	10.22	35.0	10.98	-	-
	16	46.4	7.34	43.9	8.32	41.3	9.35	38.7	10.27	36.1	11.03	-	-
	18	47.8	7.39	45.2	8.42	42.6	9.46	39.9	10.33	37.3	11.14	-	-

7.16. STANDARD ANL 2000 °

	Temp. of water produced (C°)	External air temperature											
		20		25		30		35		40		45	
		Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe	Pc	Pe
With thermo-static valve Y	-6	38.2	9.16	36.1	10.57	33.9	11.99	31.5	13.25	-	-	-	-
	-4	40.5	9.23	38.2	10.65	35.8	12.06	33.4	13.33	-	-	-	-
	-2	42.7	9.31	40.3	10.72	37.8	12.06	35.3	13.33	32.7	14.44	-	-
	0	44.9	9.38	42.3	10.72	39.7	12.14	37.0	13.40	34.4	14.44	-	-
With thermo-static valve Z	2	47.0	9.38	44.3	10.80	41.6	12.14	38.9	13.48	36.1	14.52	-	-
	4	49.0	9.46	46.2	10.80	43.4	12.21	40.6	13.48	37.7	14.59	34.9	15.41
With thermo-static valve Standard	6	51.0	9.46	48.1	10.87	45.2	12.29	42.2	13.55	39.3	14.74	36.4	15.56
	7	52.0	9.60	49.0	10.95	46.1	12.36	43.0	13.70	40.1	14.74	37.2	15.56
	8	53.0	9.68	50.0	11.02	47.0	12.43	43.9	13.70	40.9	14.82	37.9	15.64
	10	54.9	9.75	51.8	11.17	48.7	12.51	45.6	13.85	42.5	14.89	-	-
	12	56.8	9.83	53.6	11.24	50.4	12.66	47.2	13.92	44.1	14.97	-	-
	14	58.7	9.98	55.4	11.32	52.1	12.73	48.8	14.00	45.6	15.04	-	-
	16	60.5	10.05	57.2	11.39	53.8	12.81	50.4	14.07	47.1	15.11	-	-
	18	62.3	10.13	58.9	11.54	55.4	12.96	52.0	14.15	48.7	15.26	-	-

IN COOLING MODE

- Water inlet temperature	12 °C
- Outlet water temperature	7 °C
- External air temperature	35 °C
- Δt	5°C

Pc Cooling capacity (kW)

Pe Input power (kW)

7.13. CORRECTIVE FACTORS AT ΔT DIFFERENT FROM NOMINAL CHILLER

	3	5	8	10
Cooling capacity correction factors	0,99	1	1,02	1,03
Input power correction factors	0,99	1	1,01	1,02

7.14. FATTORI DI INCROSTAZIONE

	[K*m ²]/[W]	0,00005	0,0001	0,0002
Cooling capacity correction factors		1	0.98	0.94
Input power correction factors		1	0,98	0,95

8. PERFORMANCE IN HEATING MODE MODE

8.1. ANL 020 H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	3.8	1.63	-	-	-	-	-	-
-8	4.0	1.63	3.9	1.76	-	-	-	-
-6	4.2	1.62	4.1	1.76	4.0	1.90	-	-
-4	4.4	1.63	4.3	1.76	4.2	1.90	4.1	2.13
-2	4.6	1.63	4.5	1.76	4.4	1.90	4.2	2.13
0	4.8	1.63	4.7	1.77	4.6	1.90	4.4	2.13
2	5.0	1.63	4.9	1.77	4.8	1.90	4.7	2.13
4	6.0	1.63	5.9	1.77	5.7	1.91	5.6	2.14
6	6.3	1.63	6.2	1.77	6.1	1.91	5.9	2.14
7	6.5	1.64	6.3	1.77	6.2	1.91	6.0	2.14
8	6.6	1.64	6.5	1.77	6.3	1.91	6.2	2.14
10	6.9	1.64	6.7	1.78	6.6	1.91	6.4	2.14
12	7.2	1.64	7.0	1.78	6.8	1.92	6.6	2.14
14	7.5	1.64	7.2	1.78	7.0	1.92	6.8	2.15
16	7.7	1.64	7.5	1.78	7.3	1.92	7.0	2.15
18	8.0	1.64	7.8	1.78	7.5	1.92	7.2	2.15
20	8.3	1.64	8.1	1.78	7.8	1.92	7.5	2.15

8.2. ANL 025 H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	4.3	1.80	-	-	-	-	-	-
-8	4.6	1.80	4.4	1.96	-	-	-	-
-6	4.8	1.80	4.7	1.96	4.5	2.11	-	-
-4	5.0	1.80	4.9	1.96	4.7	2.11	4.6	2.36
-2	5.2	1.81	5.1	1.96	4.9	2.11	4.8	2.36
0	5.4	1.81	5.3	1.96	5.1	2.11	5.0	2.37
2	5.7	1.81	5.5	1.96	5.4	2.11	5.3	2.37
4	6.7	1.81	6.6	1.96	6.5	2.12	6.3	2.37
6	7.1	1.81	7.0	1.97	6.8	2.12	6.7	2.37
7	7.3	1.81	7.2	1.97	7.0	2.12	6.8	2.37
8	7.5	1.82	7.3	1.97	7.1	2.12	7.0	2.38
10	7.8	1.82	7.6	1.97	7.4	2.12	7.2	2.38
12	8.1	1.82	7.9	1.97	7.7	2.13	7.5	2.38
14	8.4	1.82	8.2	1.98	7.9	2.13	7.7	2.38
16	8.7	1.82	8.5	1.98	8.2	2.13	7.9	2.38
18	9.1	1.82	8.8	1.98	8.5	2.13	8.2	2.38
20	9.4	1.83	9.1	1.98	8.8	2.13	8.4	2.38

IN COOLING MODE

- Water inlet temperature
 - Outlet water temperature
 - External air temperature
 - Δt

12 °C
 7 °C
 35 °C
 5°C

IN HEATING MODE

- Water inlet temperature
 - Temperatura acqua uscita
 - External air temperature
 - Δt

40 °C
 45 °C
 b.s. 7 °C
 5°C

Ph Heating capacity (kW)
 Pe Input power (kW)

8.3. ANL 030 H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	5.2	2.23	-	-	-	-	-	-
-8	5.5	2.23	5.3	2.42	-	-	-	-
-6	5.7	2.23	5.6	2.42	5.4	2.61	-	-
-4	6.0	2.23	5.8	2.42	5.7	2.61	5.5	2.92
-2	6.3	2.23	6.1	2.42	5.9	2.61	5.8	2.92
0	6.5	2.23	6.3	2.42	6.2	2.61	6.0	2.92
2	6.8	2.24	6.6	2.42	6.5	2.61	6.3	2.93
4	8.1	2.24	7.9	2.43	7.8	2.62	7.6	2.93
6	8.5	2.24	8.4	2.43	8.2	2.62	8.0	2.93
7	8.8	2.24	8.6	2.43	8.4	2.62	8.2	2.93
8	9.0	2.24	8.8	2.43	8.6	2.62	8.4	2.94
10	9.4	2.25	9.1	2.44	8.9	2.62	8.7	2.94
12	9.7	2.25	9.5	2.44	9.2	2.63	9.0	2.94
14	10.1	2.25	9.8	2.44	9.5	2.63	9.2	2.94
16	10.5	2.25	10.2	2.44	9.8	2.63	9.5	2.95
18	10.9	2.26	10.5	2.44	10.2	2.63	9.8	2.95
20	11.3	2.26	10.9	2.44	10.5	2.63	10.1	2.95

8.4. ANL 040 H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	6.6	2.81	-	-	-	-	-	-
-8	6.9	2.81	6.7	2.99	-	-	-	-
-6	7.2	2.81	7.1	2.99	6.8	3.16	-	-
-4	7.6	2.81	7.4	2.99	7.2	3.16	6.9	3.55
-2	7.9	2.81	7.7	2.99	7.5	3.17	7.3	3.55
0	8.2	2.81	8.0	2.99	7.8	3.17	7.6	3.55
2	8.6	2.82	8.4	2.99	8.2	3.17	8.0	3.55
4	10.2	2.82	10.0	3.00	9.8	3.17	9.6	3.56
6	10.8	2.82	10.6	3.00	10.4	3.18	10.1	3.56
7	11.1	2.82	10.8	3.00	10.6	3.18	10.3	3.56
8	11.3	2.83	11.1	3.00	10.8	3.18	10.5	3.56
10	11.8	2.83	11.5	3.01	11.2	3.19	10.9	3.57
12	12.3	2.83	12.0	3.01	11.6	3.19	11.3	3.57
14	12.8	2.84	12.4	3.01	12.0	3.19	11.6	3.57
16	13.2	2.84	12.8	3.02	12.4	3.19	12.0	3.58
18	13.7	2.84	13.3	3.02	12.8	3.20	12.4	3.58
20	14.3	2.84	13.8	3.02	13.3	3.20	12.8	3.58

IN COOLING MODE

- Water inlet temperature	12 °C
- Outlet water temperature	7 °C
- External air temperature	35 °C
- Δt	5°C

IN HEATING MODE

- Water inlet temperature	40 °C
- Temperatura acqua uscita	45 °C
- External air temperature	b.s. 7 °C
- Δt	5°C

Ph Heating capacity (kW)

Pe Input power (kW)

8.5. ANL 050 H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	8.7	3.66	-	-	-	-	-	-
-8	9.1	3.66	8.9	3.97	-	-	-	-
-6	9.6	3.66	9.3	3.97	9.0	4.28	-	-
-4	10.0	3.66	9.7	3.97	9.5	4.28	9.2	4.79
-2	10.5	3.66	10.2	3.97	9.9	4.28	9.6	4.80
0	10.9	3.66	10.6	3.97	10.3	4.28	10.0	4.80
2	11.3	3.67	11.1	3.98	10.8	4.29	10.5	4.80
4	13.5	3.67	13.2	3.98	13.0	4.29	12.7	4.81
6	14.2	3.68	14.0	3.99	13.7	4.30	13.3	4.81
7	14.6	3.68	14.3	3.99	14.0	4.30	13.6	4.82
8	15.0	3.68	14.6	3.99	14.3	4.30	13.9	4.82
10	15.6	3.69	15.2	4.00	14.9	4.31	14.4	4.82
12	16.2	3.69	15.8	4.00	15.4	4.31	14.9	4.83
14	16.8	3.70	16.4	4.01	15.9	4.32	15.4	4.83
16	17.5	3.70	16.9	4.01	16.4	4.32	15.9	4.83
18	18.1	3.70	17.5	4.01	16.9	4.32	16.3	4.84
20	18.8	3.70	18.2	4.01	17.5	4.32	16.9	4.84

8.6. ANL 070H

External air temperature (C°) D.B.	Temperature of produced water							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	10.7	4.33						
-8	11.3	4.33	11.0	4.60				
-6	11.8	4.33	11.5	4.60	11.2	4.87		
-4	12.4	4.33	12.0	4.60	11.7	4.88	11.3	5.46
-2	12.9	4.33	12.5	4.60	12.2	4.88	11.8	5.47
0	13.5	4.33	13.1	4.61	12.7	4.88	12.4	5.47
2	14.0	4.34	13.7	4.61	13.3	4.89	13.0	5.47
4	16.6	4.34	16.4	4.62	16.0	4.89	15.7	5.48
6	17.6	4.35	17.3	4.62	16.9	4.90	16.5	5.49
7	18.1	4.35	17.7	4.63	17.3	4.90	16.9	5.49
8	18.5	4.35	18.1	4.63	17.7	4.90	17.2	5.49
10	19.3	4.36	18.8	4.63	18.4	4.91	17.8	5.50
12	20.1	4.36	19.5	4.64	19.0	4.91	18.4	5.50
14	20.8	4.37	20.2	4.64	19.6	4.92	19.0	5.51
16	21.6	4.37	20.9	4.65	20.3	4.92	19.6	5.51
18	22.4	4.37	21.7	4.65	20.9	4.92	20.2	5.51
20	23.3	4.37	22.5	4.65	21.7	4.92	20.9	5.51

IN COOLING MODE

- Water inlet temperature
 - Outlet water temperature
 - External air temperature
 - Δt

12 °C
 7 °C
 35 °C
 5°C

IN HEATING MODE

- Water inlet temperature
 - Temperatura acqua uscita
 - External air temperature
 - Δt

40 °C
 45 °C
 b.s. 7 °C
 5°C

Ph Heating capacity (kW)

Pe Input power (kW)

8.7. ANL 080 H

External air temperature (C°) D.B.	Temperature of produced water °C							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	13.7	5.56	-	-	-	-	-	-
-8	14.5	5.56	14.1	5.91	-	-	-	-
-6	15.2	5.56	14.8	5.91	14.3	6.27	-	-
-4	15.9	5.56	15.4	5.92	15.0	6.27	14.5	7.02
-2	16.6	5.57	16.1	5.92	15.7	6.27	15.2	7.03
0	17.3	5.57	16.8	5.92	16.3	6.28	15.9	7.03
2	18.0	5.58	17.6	5.93	17.1	6.28	16.7	7.04
4	21.4	5.58	21.0	5.94	20.6	6.29	20.1	7.05
6	22.6	5.59	22.1	5.94	21.7	6.30	21.2	7.05
7	23.2	5.59	22.7	5.95	22.2	6.30	21.6	7.06
8	23.7	5.60	23.2	5.95	22.7	6.30	22.1	7.06
10	24.8	5.61	24.2	5.96	23.5	6.31	22.9	7.07
12	25.7	5.61	25.1	5.96	24.4	6.32	23.7	7.07
14	26.7	5.62	26.0	5.97	25.2	6.32	24.4	7.08
16	27.7	5.62	26.9	5.97	26.0	6.33	25.1	7.08
18	28.8	5.62	27.8	5.98	26.9	6.33	25.9	7.09
20	29.9	5.62	28.8	5.98	27.8	6.33	26.8	7.09

8.8. ANL 090 H

External air temperature (C°) D.B.	Temperature of produced water °C							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	15.0	6.05						
-8	15.8	6.05	15.4	6.43				
-6	16.5	6.05	16.1	6.43	15.6	6.81		
-4	17.3	6.05	16.8	6.43	16.3	6.82	15.8	7.64
-2	18.1	6.05	17.6	6.44	17.1	6.82	16.6	7.64
0	18.8	6.06	18.3	6.44	17.8	6.82	17.3	7.65
2	19.6	6.06	19.1	6.45	18.6	6.83	18.2	7.65
4	23.3	6.07	22.9	6.45	22.4	6.84	21.9	7.66
6	24.6	6.08	24.1	6.46	23.6	6.85	23.1	7.67
7	25.3	6.08	24.7	6.47	24.2	6.85	23.6	7.67
8	25.8	6.09	25.3	6.47	24.7	6.85	24.1	7.68
10	27.0	6.09	26.3	6.48	25.7	6.86	25.0	7.68
12	28.1	6.10	27.3	6.49	26.6	6.87	25.8	7.69
14	29.1	6.11	28.3	6.49	27.5	6.87	26.6	7.70
16	30.2	6.11	29.3	6.50	28.4	6.88	27.4	7.70
18	31.3	6.12	30.3	6.50	29.3	6.88	28.2	7.70
20	32.6	6.12	31.4	6.50	30.3	6.88	29.2	7.71

IN COOLING MODE

- Water inlet temperature	12 °C
- Outlet water temperature	7 °C
- External air temperature	35 °C
- Δt	5°C

IN HEATING MODE

- Water inlet temperature	40 °C
- Temperatura acqua uscita	45 °C
- External air temperature	b.s. 7 °C
- Δt	5°C

Ph Heating capacity (kW)

Pe Input power (kW)

8.9. ANL 100 H

External air temperature (C°) D.B.	Temperature of produced water °C							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	47.32	7.34	-	-	-	-	-	-
-8	44.95	7.34	46.10	7.92	-	-	-	-
-6	42.81	7.29	43.85	7.92	18.71	8.55	-	-
-4	40.86	7.34	41.81	7.92	19.65	8.55	19.18	9.59
-2	39.09	7.34	39.96	7.92	20.58	8.55	19.65	9.59
0	37.46	7.34	38.26	7.97	21.52	8.55	20.58	9.59
2	35.96	7.34	36.69	7.97	22.45	8.55	21.98	9.59
4	29.97	7.34	30.47	7.97	26.66	8.60	26.19	9.64
6	28.54	7.34	29.00	7.97	28.53	8.60	27.60	9.64
7	27.66	7.38	28.54	7.97	4.68	4.50	28.06	9.64
8	27.24	7.38	27.66	7.97	29.0	8.60	29.00	9.64
10	26.06	7.38	26.84	8.01	30.87	8.60	29.94	9.64
12	24.97	7.38	25.69	8.01	31.81	8.65	30.87	9.64
14	23.97	7.38	24.97	8.01	32.74	8.65	31.81	9.68
16	23.35	7.38	23.97	8.01	34.15	8.65	32.74	9.68
18	22.48	7.38	23.05	8.01	35.08	8.65	33.68	9.68
20	21.66	7.38	22.20	8.01	36.48	8.65	35.08	9.68

8.10. ANL 150 H

External air temperature (C°) D.B.	Temperature of produced water °C							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	57.11	8.62	-	-	-	-	-	-
-8	54.25	8.62	55.64	9.31	-	-	-	-
-6	51.67	8.57	52.93	9.31	22.58	10.05	-	-
-4	49.32	8.62	50.47	9.31	23.71	10.05	23.15	11.26
-2	47.17	8.62	48.22	9.31	24.84	10.05	23.71	11.26
0	45.21	8.62	46.17	9.36	25.97	10.05	24.84	11.26
2	43.40	8.62	44.29	9.36	27.10	10.05	26.53	11.26
4	36.17	8.62	36.78	9.36	32.18	10.10	31.61	11.32
6	34.44	8.62	35.00	9.36	34.44	10.10	33.31	11.32
7	33.38	8.67	34.44	9.36	5.65	5.29	33.87	11.32
8	32.88	8.67	33.38	9.36	35.0	10.10	35.00	11.32
10	31.45	8.67	32.39	9.41	37.26	10.10	36.13	11.32
12	30.14	8.67	31.00	9.41	38.39	10.15	37.26	11.32
14	28.93	8.67	30.14	9.41	39.52	10.15	38.39	11.37
16	28.18	8.67	28.93	9.41	41.21	10.15	39.52	11.37
18	27.13	8.67	27.82	9.41	42.34	10.15	40.65	11.37
20	26.14	8.67	26.79	9.41	44.03	10.15	42.34	11.37

IN COOLING MODE

- Water inlet temperature	12 °C
- Outlet water temperature	7 °C
- External air temperature	35 °C
- Δt	5°C

IN HEATING MODE

- Water inlet temperature	40 °C
- Temperatura acqua uscita	45 °C
- External air temperature	b.s. 7 °C
- Δt	5°C

Ph Heating capacity (kW)

Pe Input power (kW)

8.11. ANL 200 H

External air temperature (C°) D.B.	Temperature of produced water °C							
	35		40		45		50	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
-10	75.05	11.35	-	-	-	-	-	-
-8	71.30	11.35	73.13	12.26	-	-	-	-
-6	67.90	11.28	69.56	12.26	29.68	13.23	-	-
-4	64.82	11.35	66.33	12.26	31.16	13.23	30.42	14.83
-2	62.00	11.35	63.38	12.26	32.65	13.23	31.16	14.83
0	59.42	11.35	60.68	12.33	34.13	13.23	32.65	14.83
2	57.04	11.35	58.20	12.33	35.61	13.23	34.87	14.83
4	47.53	11.35	48.34	12.33	42.29	13.30	41.55	14.90
6	45.27	11.35	46.00	12.33	45.26	13.30	43.77	14.90
7	43.88	11.42	45.27	12.33	7.42	6.96	44.52	14.90
8	43.21	11.42	43.88	12.33	46.0	13.30	46.00	14.90
10	41.33	11.42	42.57	12.39	48.97	13.30	47.48	14.90
12	39.61	11.42	40.74	12.39	50.45	13.37	48.97	14.90
14	38.03	11.42	39.61	12.39	51.94	13.37	50.45	14.97
16	37.04	11.42	38.03	12.39	54.16	13.37	51.94	14.97
18	35.65	11.42	36.56	12.39	55.65	13.37	53.42	14.97
20	34.36	11.42	35.21	12.39	57.87	13.37	55.65	14.97

IN COOLING MODE

- Water inlet temperature 12 °C
 - Outlet water temperature 7 °C
 - External air temperature 35 °C
 - Δt 5°C

IN HEATING MODE

- Water inlet temperature 40 °C
 - Temperatura acqua uscita 45 °C
 - External air temperature b.s. 7 °C
 - Δt 5°C

Ph Heating capacity (kW)

Pe Input power (kW)

9. ETHYLENE GLYCOL SOLUTIONS

- The correction factors of cooling power and input power take into account the presence of glycol and diverse evaporation temperatures.
- The pressure drop correction factor considers the different flow rate resulting from the application of the water flow rate correction factor.
- The water flow rate correction factor is calculated to keep the same Δt that would be present with the absence of glycol.

NOTE

On the following page an example is given to help graph reading.

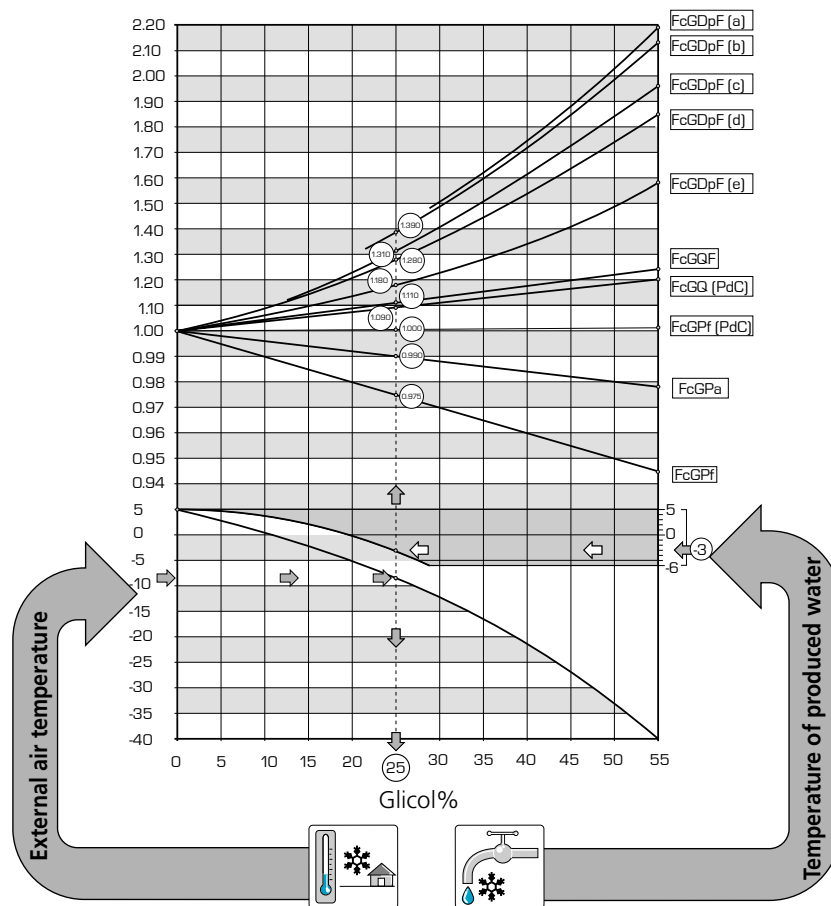
Using the diagram below it is possible to determine the percentage of glycol required; this percentage can be calculated by taking of the following factors into consideration one:

Depending on which fluid is considered (water or air), the graph is interpreted by the right or left side at the crossing point on the curves with the external temperature line or the water produced line. A point from which the vertical line will pass is obtained and this will distinguish both glycol percentage and relative correction coefficients.

9.1. HOW TO INTERPRET GLYCOL CURVES

The curves shown in the diagram summarise a significant number of data, each of which is represented by a specific curve. In order to use these curves correctly it is first necessary to make some initial reflections.

- If you wish to calculate the percentage of glycol on the basis of the external air temperature, enter from the left axis and on reaching the curve draw a vertical line, which in turn will intercept all the other curves; the points obtained from the upper curves represent the coefficients for the correction of the cooling capacity and input power, the flow rates and the pressure drops (remember that these coefficients must be multiplied by the nominal value of the size in question); while the glycol percentage value recommended to produce desired water temperature is on the lower axis.
- If you wish to calculate the percentage of glycol on the basis of the temperature of the water produced, enter from the right axis and on reaching the curve draw a vertical line, which in turn will intercept all the other curves; the points



KEY:

FcGPf	Corrective factors for cooling capacity
FcGPa	Corrective factors of the input power
FcGDpF (a)	Correction factors for pressure drop (evaporator) (av. temp. = -3.5 °C)
FcGDpF (b)	Correction factors for pressure drops (av. temp. = 0.5 °C)
FcGDpF (c)	Correction factors for pressure drops (av. temp. = 5.5 °C)
FcGDpF (d)	Correction factors for pressure drops (av. temp. = 9.5 °C)
FcGDpF (e)	Correction factors for pressure drops (av. temp. = 47.5 °C)
FcGQF	Correction factor of flow rates (evap.) (av. temp. = 9.5 °C)
FcGQC	Correction factors of flow rates (condenser) (av. temp. = 47.5 °C)

NOTE

Although the graph arrives at external air temperatures of -40°C, unit operational limits must be considered.

obtained from the upper curves represent the coefficients for the correction of the cooling capacity and input power, the flow rates and the pressure drops (remember that these coefficients must be multiplied by the nominal value of the size in question); while the lower axis recommends the glycol percentage value necessary to produce water at the desired temperature.

Initial rates for "EXTERNAL AIR TEMPERATURE" and "TEMPERATURE OF PRODUCED WATER", are not directly related, therefore it is not possible to

refer to the curve of one of these rates to obtain corresponding point on the curve of the other rate.

10. EVAPORATOR PRESSURE DROPS AND USEFUL STATIC PRESSURES

The standard ANLs (without storage tank and/or pump) are supplied with installed water filters as per standard:

- for ANL 020 - 025 - 030 - 040 filter is 1"
- For ANL 050- 070 - 080 - 090 - 100 - 150 - 200 filter is 1 1/4"

NOTE

The pressure drops and the static pressures are calculated in cooling mode with 10°C water.

The table below states the correction to apply to the pressure drops on variation of the average water temperature.

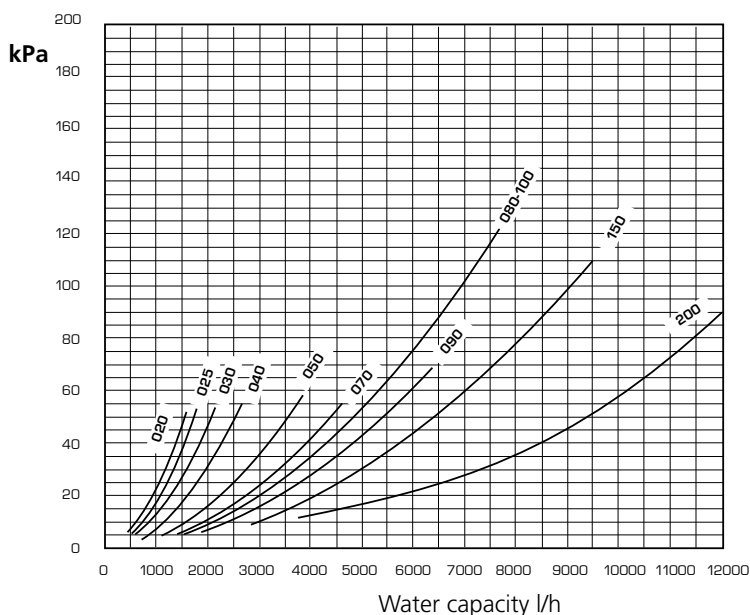
10.1. STATIC PRESSURES USEFUL TO THE SYSTEM

For the "A, P, N, Q" versions (with storage tank and/or pump only). The static pressures stated here are at net of the pressure drops of the heat exchangers, filter, storage tank. Therefore are to be considered USEFUL TO SYSTEM.

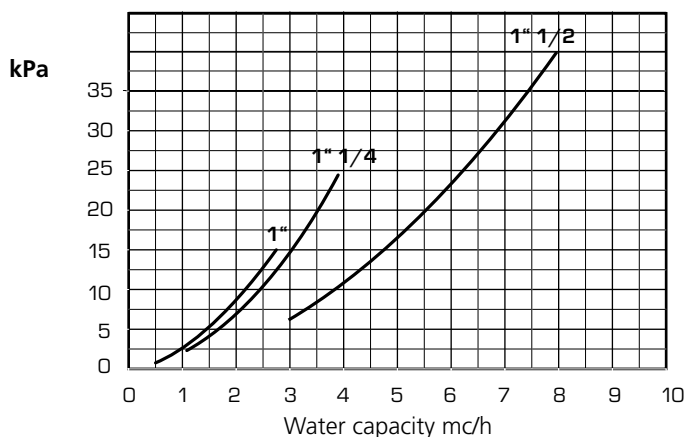
NOTE

- The static pressures are calculated in cooling mode.
- WITH PRESENCE OF GLYCOL for static pressures useful to system PLEASE CONTACT COMPANY.

10.1.1. Standard versions pressure drops

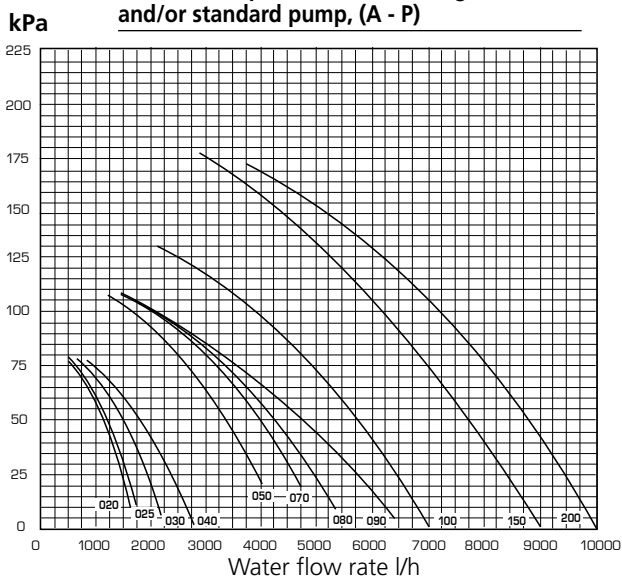


10.1.2. Filters pressure drops

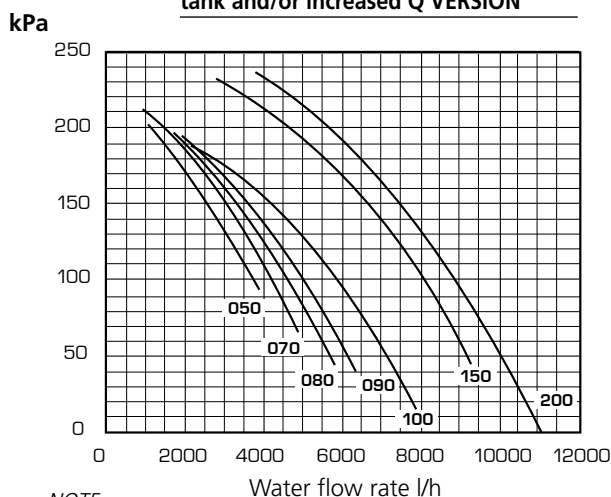


Average water temperature °C	5	10	15	20	30	40	50
Multiplicative coefficients	1,02	1	0,985	0,97	0,95	0,93	0,91

10.1.3. Useful static pressures with storage tank and/or standard pump, (A - P)



10.1.4. Useful static pressures with storage tank and/or increased Q VERSION



NOTE

The Q version with increased pump is only available for ANL 050 - 070 - 080 - 090 - 100 - 150 - 200 sizes

11. STORAGE TANK

The following tables highlight principle characteristics for hydraulic circuit components, whilst the graph on the following page shows relative static pressures.

11.1. MINIMUM/MAXIMUM CONTENT OF SYSTEM WATER

The minimum water content of system recommended for units without hydronic kit is calculated using following formula:

Volume = $PFN_{(kW)} \times 4_{(l)} =$ litres of system
PFN: Nominal cooling capacity

That resulting minimum water content necessary for correct function of system.

The adjacent table indicates maximum water capacity in litres of hydraulic plant, compatible with expansion vessel supplied as standard IN THE VERSIONS WITH STORAGE TANK OR PUMP ONLY. The values shown in the table refer to three maximum and minimum water temperatures. If the effective water content of the hydraulic plant (including the storage tank) is greater than that given in the table at operational conditions, another dimensioned expansion vessel must be installed, using thenormal criteria, with reference to the additional volume of water.

In the following tables it is possible to work out the maximum values of the system also for glycoled water functioning. Values are worked out by multiplying the reference value by the corrective coefficient.

11.2. EXPANSION VESSEL CALIBRATION

Standard pre-load pressure value of expansion vessel when empty is 1.5 bar, maximum value is 6 bar.

Calibration of the vessel must be regulated using the maximum level difference (H) of the user (see diagram) by using the following formula:

$$p \text{ (calibration) [bar]} = H \text{ [m]} / 10,2 + 0,3.$$

For example: if level difference (H) is equal to 20m, the calibration value of the vessel will be 2.3 bar.
If calibration value obtained from formula is less than 1.5 bar (that is for $H < 12.25$), keep calibration as standard.

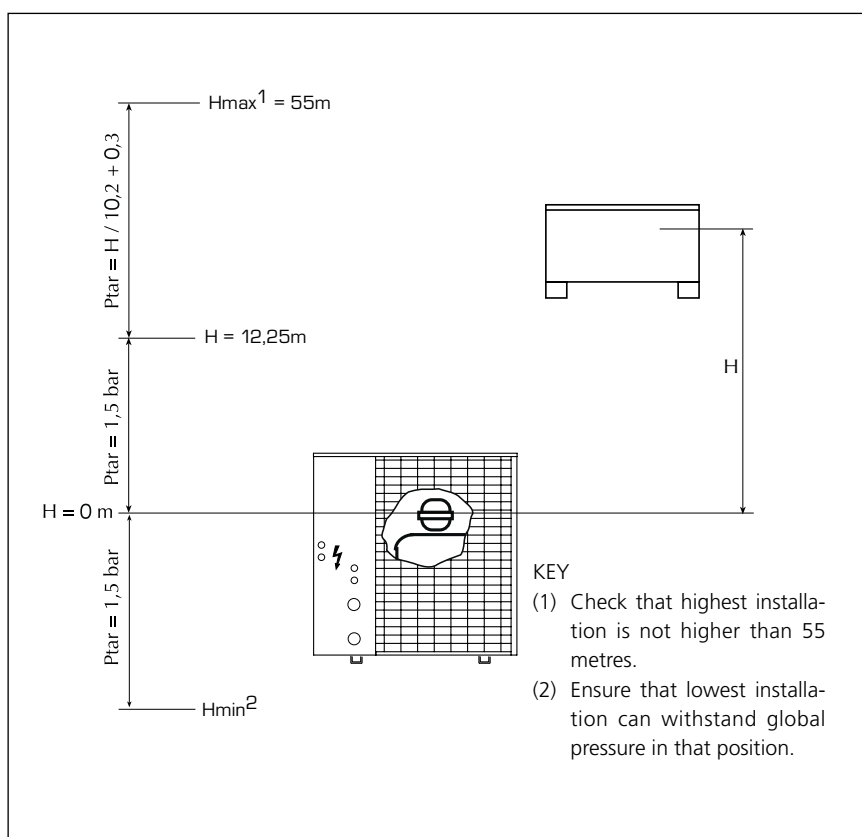
ANL 020-025-030						
Hydraulic height	H m	30	25	20	15	≥ 12.25
Calibration of expansion vessel	bar	3.2	2.8	2.3	1.8	1.5
Water content reference values	l ⁽¹⁾	103	121	139	158	168
Water content reference values	l ⁽²⁾	46	55	63	71	76

ANL 040-050-080-090-100-150-200						
Hydraulic height	H m	30	25	20	15	≥ 12.25
Calibration of expansion vessel	bar	3.2	2.8	2.3	1.8	1.5
Water content reference values	l ⁽¹⁾	257	303	348	394	419
Water content reference values	l ⁽²⁾	116	136	157	177	189

Glycoled water	Water temp. °C		Corrective coefficients	Recommended conditions
	max.	min.		
10%	40	-2	0,507	(1)
10%	60	-2	0,686	(2)
20%	40	-6	0,434	(1)
20%	60	-6	0,604	(2)
35%	40	-6	0,393	(1)
35%	60	-6	0,555	(2)

Recommended operational conditions:

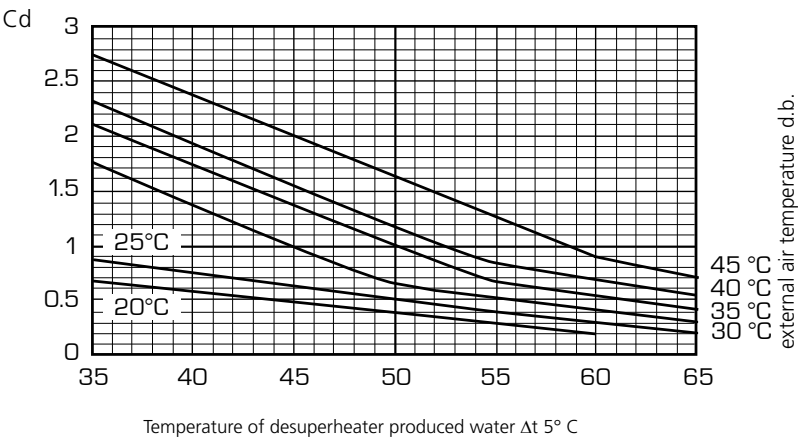
- (1) Cooling: Max water temp. = 40 °C, min water temp. = 4 °C.
- (2) Heating (hot air pump): Max water temp. = 60 °C, min water temp. = 4 °C.



12. DESUPERHEATER

The heating capacity obtained by the desuperheater is attained by multiplying the nominal value (Pd), given in table 14.1.2, by a relevant coefficient (Cd). The diagrams allow to obtain the corrective coefficients to use depending on the temperature of the external air and the temperature of the water produced at the desuperheater.

NOTE
The use of the desuperheater is possible in cooling function; for heat function it must be intercepted.



TAB.14.1.2		050	070	080	090	100	150	200
Heating capacity available	kW	5,4	6,6	8,2	8,9	13.8	17.1	18.9
Water flow rate	l/h	930	1140	1410	1530	2370	2940	3260
Pressure drop	kPa	8	10	11	13	14	24	30

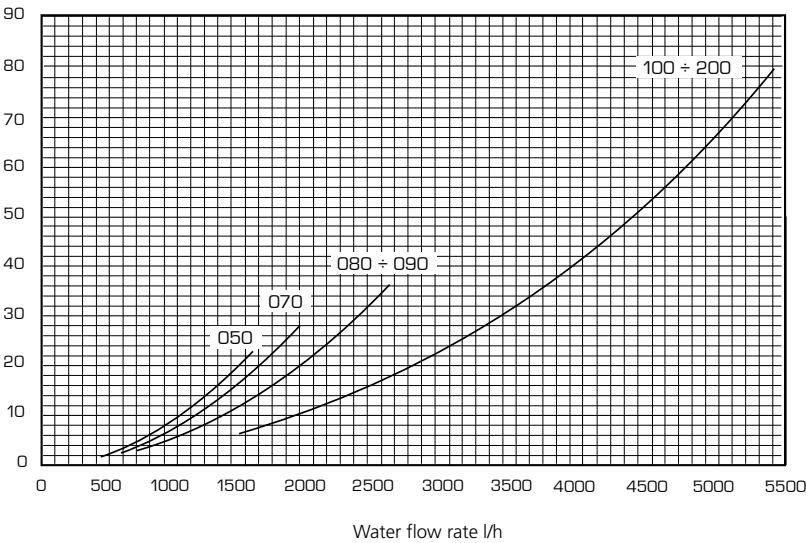
Nominal value refers to:
 air temperature 35 °C
 water at desuperheater 45/50 °C
 Δt 5°C

12.1. PRESSURE DROPS

All sized models with desuperheater have 1 desuperheater.

The features of the desuperheater and the pressure drop curves are given below.

For temperature of produced water values, different from 50°C, multiply the result obtained by corrective factor.

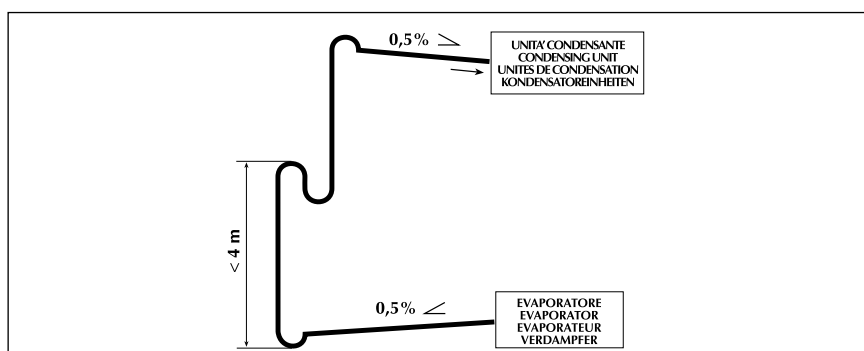


Average water temperature °C	30	40	50	60	70
Multiplicative coefficients	1.04	1.02	1	0.98	0.96

13. COOLING LINE VERSION C MOTORCONDENSING

COOLING LINES				
Model	Line length [m]	Gas line Ø [mm]	Liquid line Ø [mm]	R410A [g/m]
ANL 020 C	0-10	12,7	9,52	70
	10-20	12,7	9,52	70
	20-30	12,7	9,52	70
ANL 025 C	0-10	12,7	9,52	70
	10-20	12,7	9,52	70
	20-30	12,7	9,52	70
ANL 030 C	0-10	12,7	12,7	120
	10-20	12,7	12,7	120
	20-30	15,88	12,7	130
ANL 040 C	0-10	12,7	12,7	120
	10-20	15,88	12,7	130
	20-30	15,88	12,7	130
ANL 050 C	0-10	15,88	15,88	190
	10-20	15,88	15,88	190
	20-30	18	15,88	190
ANL 070 C	0-10	15,88	15,88	190
	10-20	18	15,88	190
	20-30	18	15,88	190
ANL 080 C	0-10	15,88	15,88	190
	10-20	18	15,88	190
	20-30	22	15,88	210
ANL 090 C	0-10	18	15,88	190
	10-20	22	15,88	210
	20-30	22	15,88	210
ANL 100 C	0-10	28,00	15,88	230
	10-20	28,00	15,88	230
	20-30	28,00	15,88	230
ANL 150 C	0-10	28,00	15,88	230
	10-20	28,00	15,88	230
	20-30	28,00	15,88	230
ANL 200 C	0-10	35,00	15,88	260
	10-20	35,00	18,00	310
	20-30	35,00	18,00	310

If evaporator is placed lower than condenser, syphons are needed in the intake line, to favour the transporting of oil towards the compressor. By line length, distance measured between the units on the liquid line, is intended. For additional information please contact company.



14. SOUND DATA

Sound power

Aermec determines sound power values in agreement with the 9614 Standard, in compliance with that requested by Eurovent certification.

Sound Pressure

Sound pressure measured in free field conditions with reflective surface (directivity factor Q=2) at 10mt distance from external surface of unit, in compliance with ISO 3744 regulations.

DURING COOLING MODE DURING HEATING MODE	Total sound levels			Octave band [Hz]							
	Pow. dB(A)	Pressure.		125	250	500	1000	2000	4000	8000	
		dB(A)	dB(A)								
		10 m	1 m								Sound power for centre of band [dB] frequency
020	61.0	30.0	43.0	70.0	64.1	59.1	52.7	46.7	41.0	35.7	
025	61.0	30.0	43.0	70.0	64.1	59.1	52.7	46.7	41.0	35.7	
030	68.0	37.0	50.0	75.4	69.6	64.0	63.5	56.7	51.2	44.6	
040	68.0	37.0	50.0	75.4	69.6	64.0	63.5	56.7	51.2	44.6	
050	69.0	38.0	51.0	76.5	69.2	64.8	64.6	58.9	53.7	46.1	
070	69.0	38.0	51.0	76.5	69.2	64.8	64.6	58.9	53.7	46.1	
080	69.0	38.0	51.0	73.8	69.4	65.8	64.1	59.5	56.5	51.0	
090	68.0	37.0	50.0	74.0	68.5	64.5	62.2	59.3	56.4	48.1	
100	76.0	44.0	58.0	61.2	66.0	71.4	72.0	68.9	60.5	48.6	
150	77.0	45.0	59.0	62.4	67.3	72.2	72.7	69.7	61.5	49.6	
200	78.0	46.0	60.0	63.6	68.4	73.4	73.5	70.5	62.5	50.6	

KEY

- Water input temperature 12 °C
- Temperature of produced water 7 °C
- External air temperature 35 °C

15. PARAMETER CALIBRATION OF SAFETY AND CONTROL

CONTROL PARAMETERS

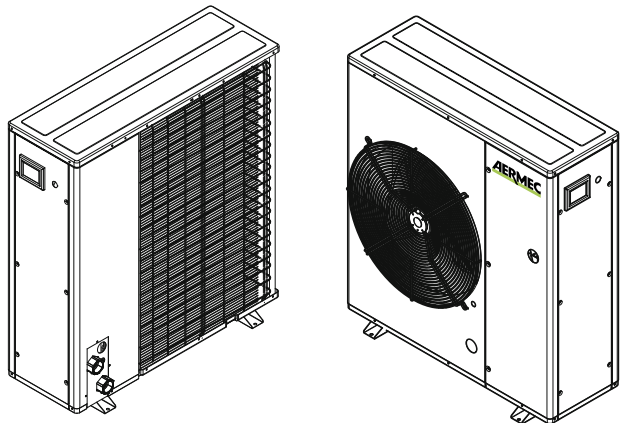
ANL		min	standard	max
Cooling set point	°C	-6	7	18
Heating set point	°C	35	48	55
Defrosting mode	°C	-9	3	4
Total differential	°C	3	5	10
Autostart		auto		

			020°	025°	030°	040°	050°	070°	080°	090°	100°	150°	200°
SAFETY AND CONTROL COMPONENTS ELECTRIC DATA													
Fan magnet circuit breakers MTV1		A	2	2	2	2	2	2	2	2	2	2	2
Fan magnet circuit breakers MTV2		A	-	-	-	-	2	2	2	2	2	2	2
Compressors magnet circuit breakers MTC1	230V	A	16	16	20	25	18	21	25	25	-	-	-
Compressors magnet circuit breakers MTC1	400V	A	2,2	2,2	6	8	10	13	15	16	10/10	12,5/12,5	15/15
High pressure pressure switch		bar	42	42	42	42	42	42	42	42	42	42	42
Low pressure pressure switch	cold	bar	2	2	2	2	2	2	2	2	2	2	2
Low pressure transducer	cold	bar	4	4	4	4	4	4	4	4	4	4	4
High pressure transducer		bar	40	40	40	40	40	40	40	40	40	40	40

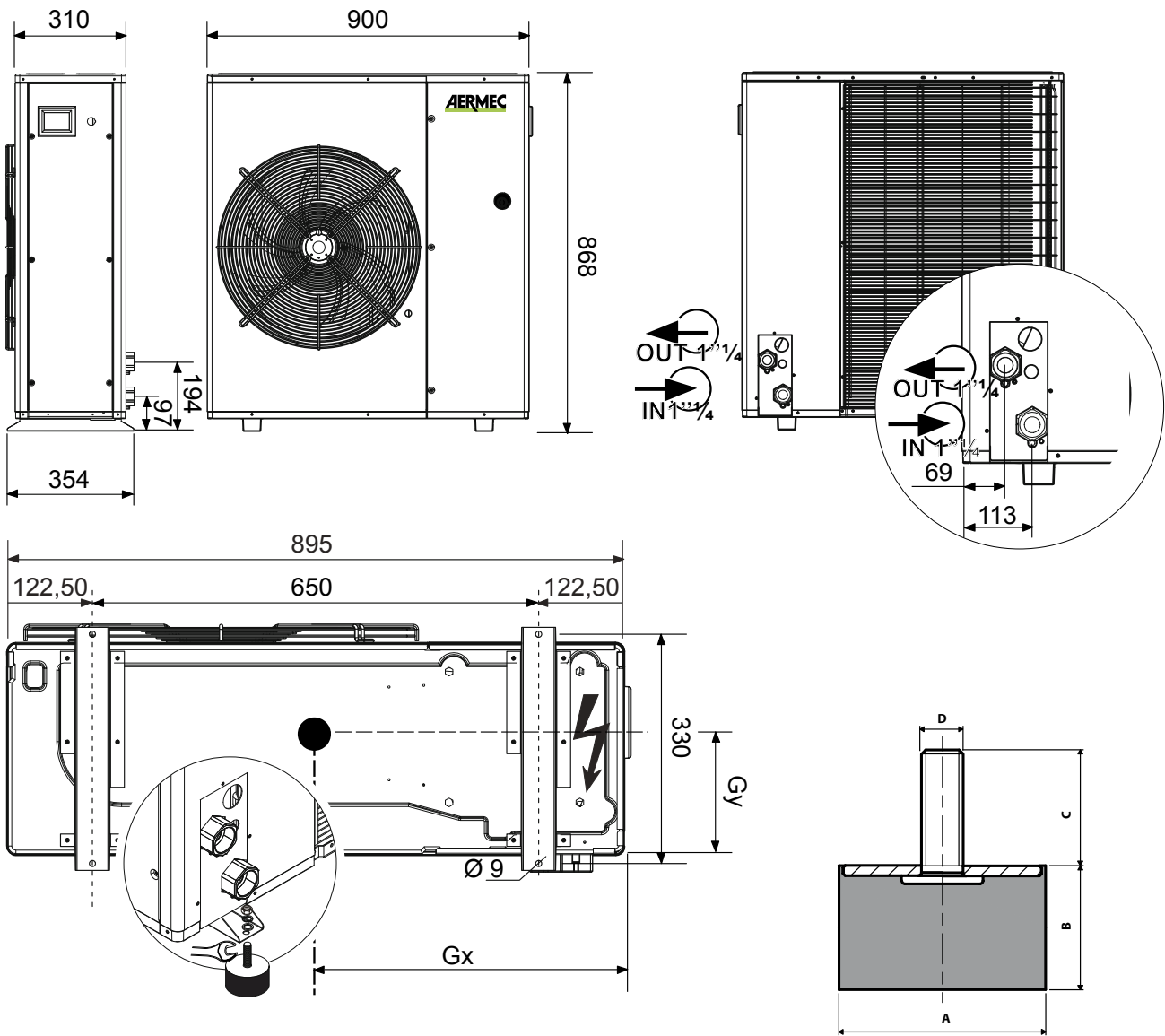
			020H	025H	030H	040H	050H	070H	080H	090H	100H	150H	200H
SAFETY AND CONTROL COMPONENTS ELECTRIC DATA													
Fan magnet circuit breakers MTV1		A	2	2	2	2	2	2	2	2	2	2	2
Fan magnet circuit breakers MTV2		A	-	-	-	-	2	2	2	2	2	2	2
Compressors magnet circuit breakers MTC1/2	230V-1	A	16	16	20	25	-	-	-	-	-	-	-
	400V-3	A	2,2	2,2	6	8	10	13	15	16	10/10	12,5/12,5	15/15
High pressure pressure switch		bar	42	42	42	42	42	42	42	42	42	42	42
Low pressure pressure switch	cold	bar	2	2	2	2	2	2	2	2	2	2	2
Low pressure transducer	cold	bar	4	4	4	4	4	4	4	4	4	4	4
	PdC	bar	2	2	2	2	2	2	2	2	2	2	2
High pressure transducer		bar	40	40	40	40	40	40	40	40	40	40	40

16. DIMENSION TABLES AND HYDRAULIC FITTING POSITIONS

16.1.1. ANL 020 - 025 °- °P/H - HP

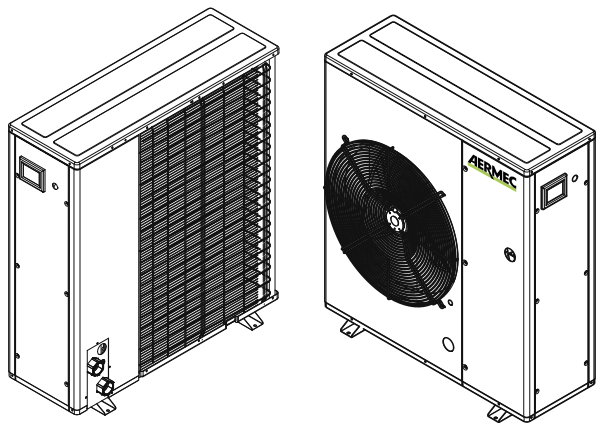


ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
030	°/H	°	86	183	336	9
030	°/H	P	91	180	327	9
040	°/H	°	86	183	336	9
040	°/H	P	91	180	327	9

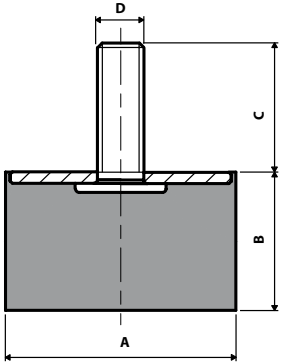
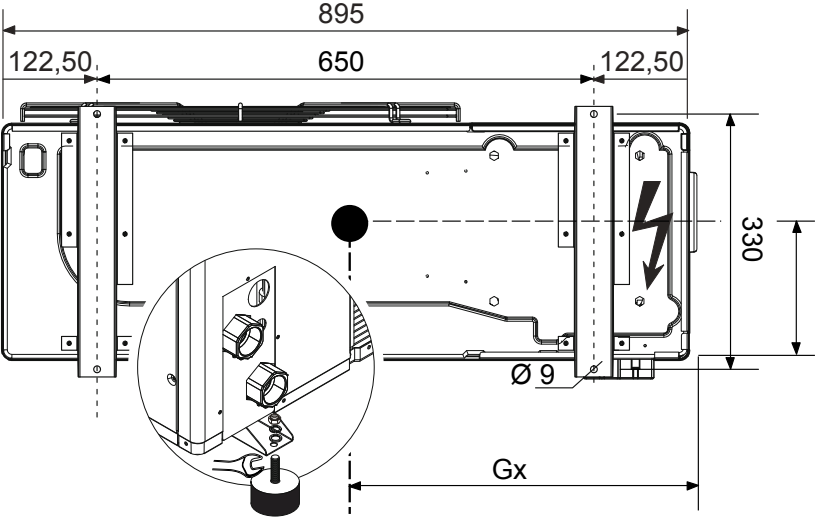
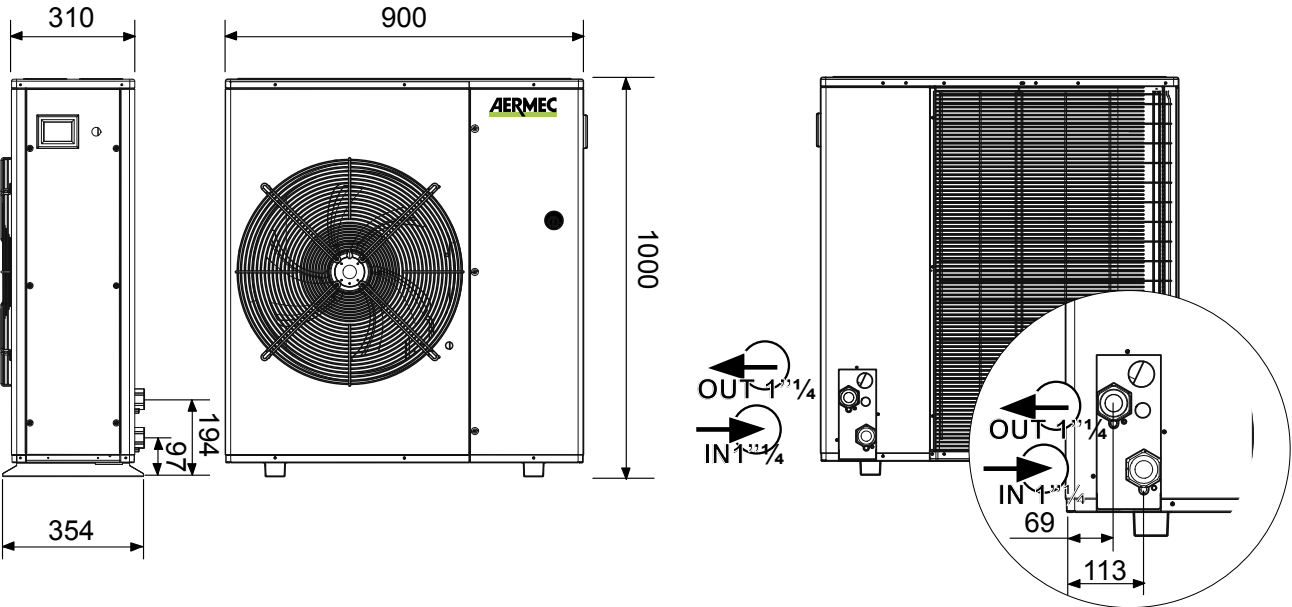


Mod.	A	B	C	D
VT9	40	30	23	M8

16.1.2. ANL 030 - 040 °- °P/H - HP

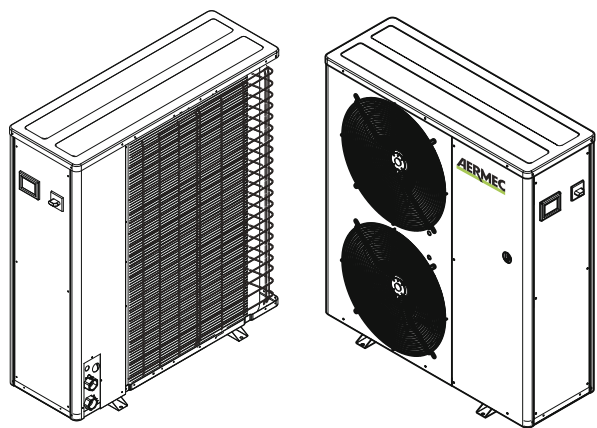


ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
030	°/H	°	86	183	336	9
030	°/H	P	91	180	327	9
040	°/H	°	86	183	336	9
040	°/H	P	91	180	327	9

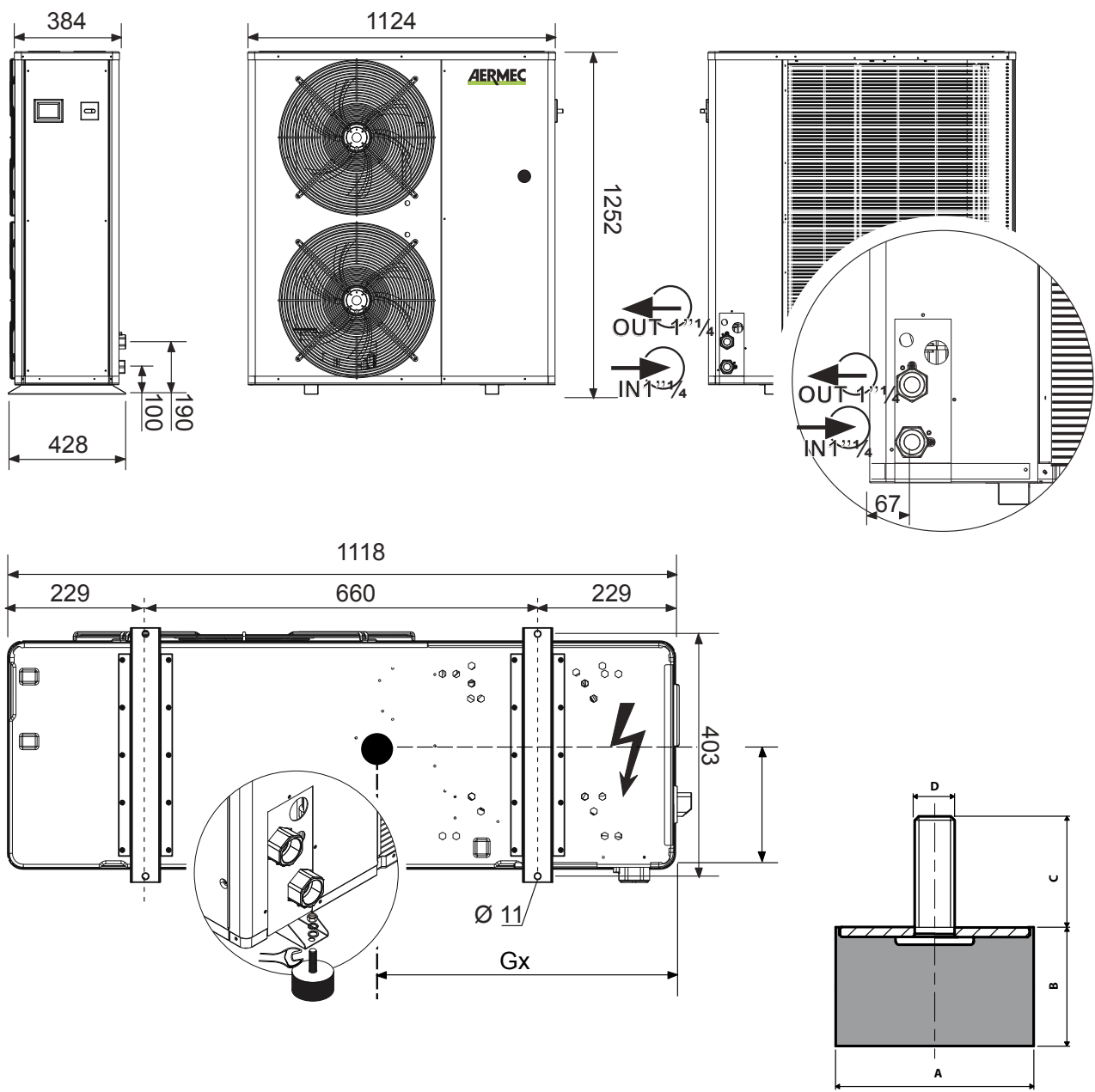


Mod.	A	B	C	D
VT9	40	30	23	M8

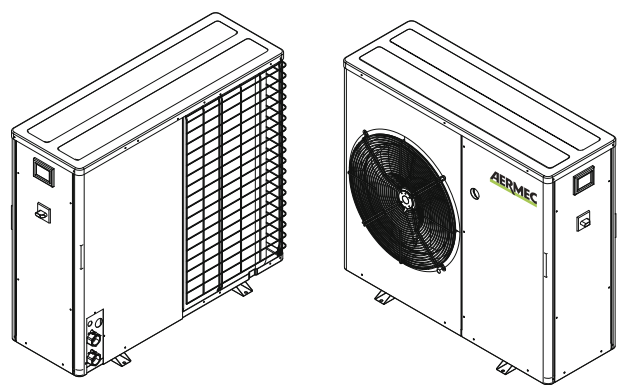
16.1.3. ANL 050 - 070 - 080 - 090 °- °P/H - HP



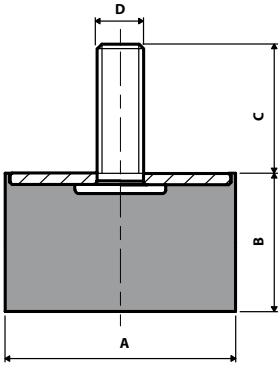
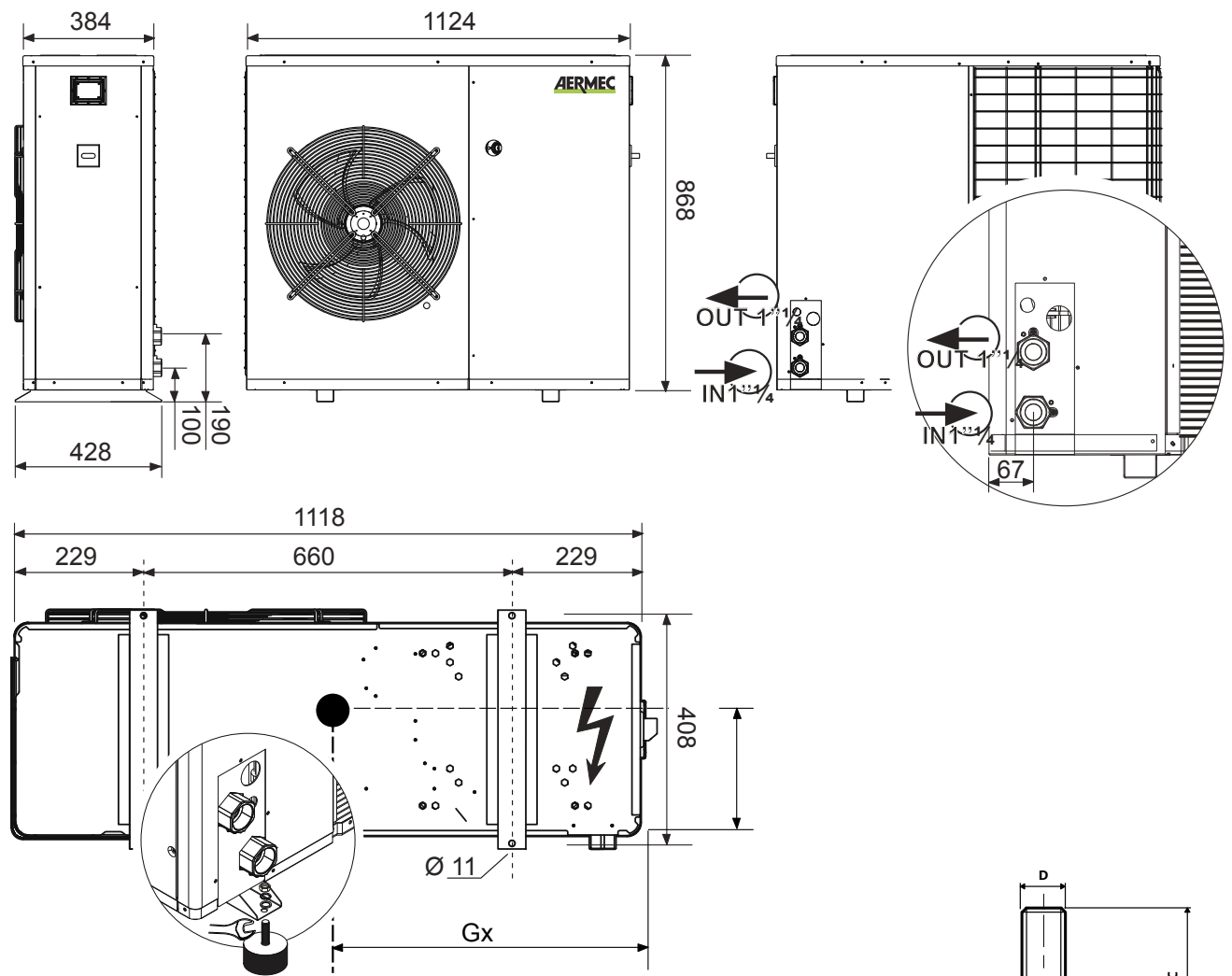
ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
050	°/H	°	120	213	447	9
050	°/H	P	127	212	436	9
070	°/H	°	120	213	447	9
070	°/H	P	127	212	436	9
080	°/H	°	156	217	453	9
080	°/H	P	163	216	444	9
090	°/H	°	156	217	453	9
090	°/H	P	163	216	444	9



Mod.	A	B	C	D
VT9	40	30	23	M8

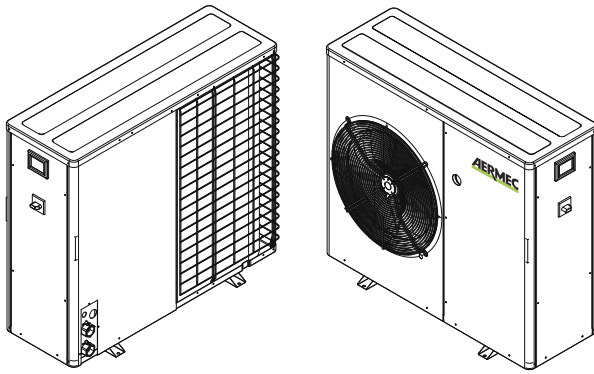


ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
020	°/H	A	99	177	326	9
025	°/H	A	99	177	326	9

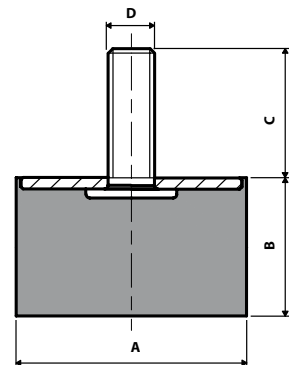
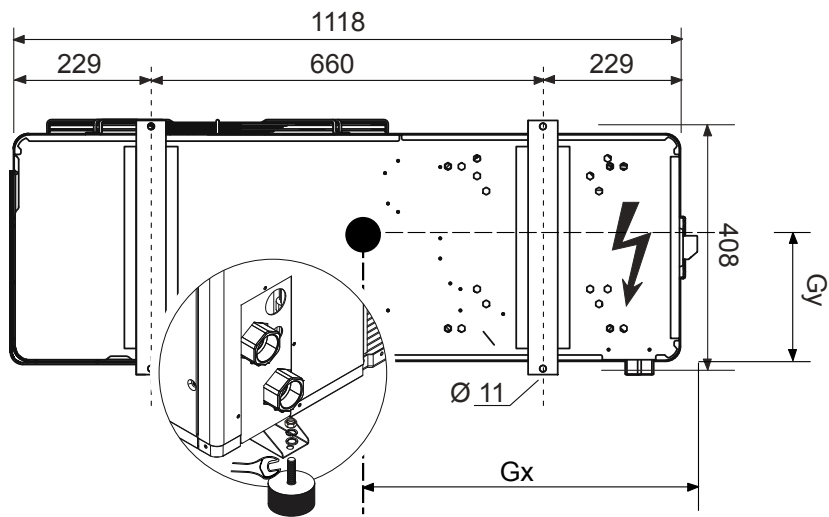
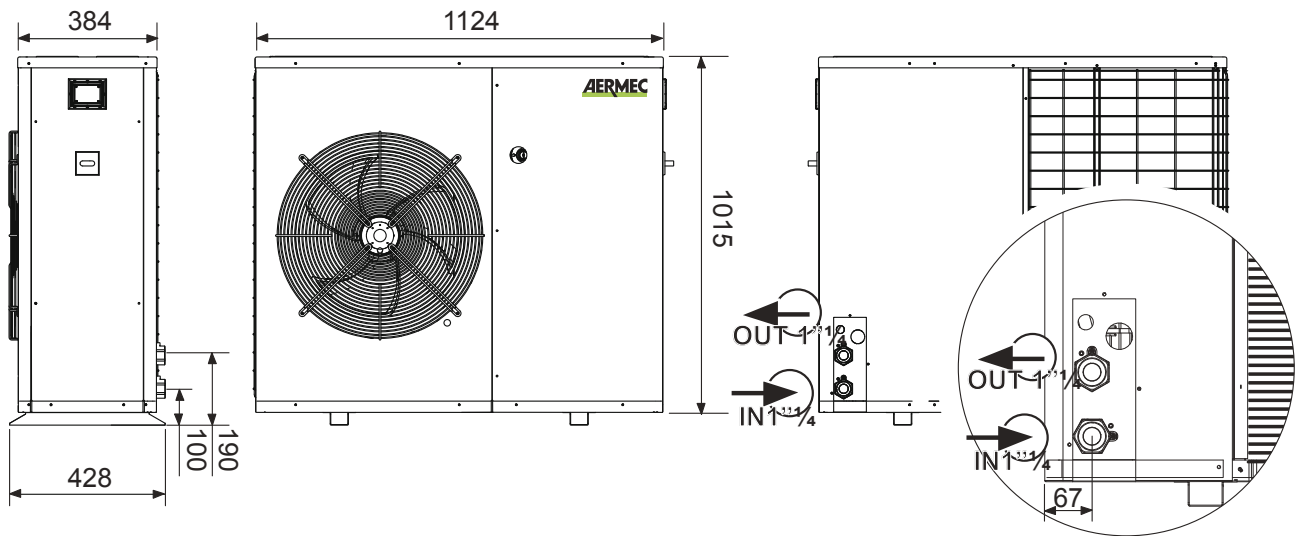


Mod.	A	B	C	D
VT9	40	30	23	M8

16.1.5. ANL 030 - 040 °A/HA

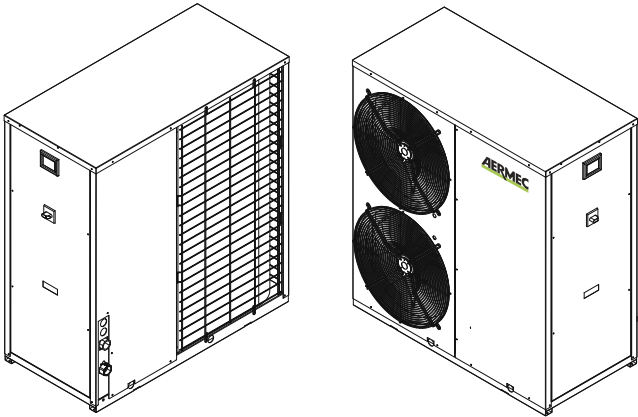


ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
030	°/H	A	103	180	327	9
040	°/H	A	103	180	327	9

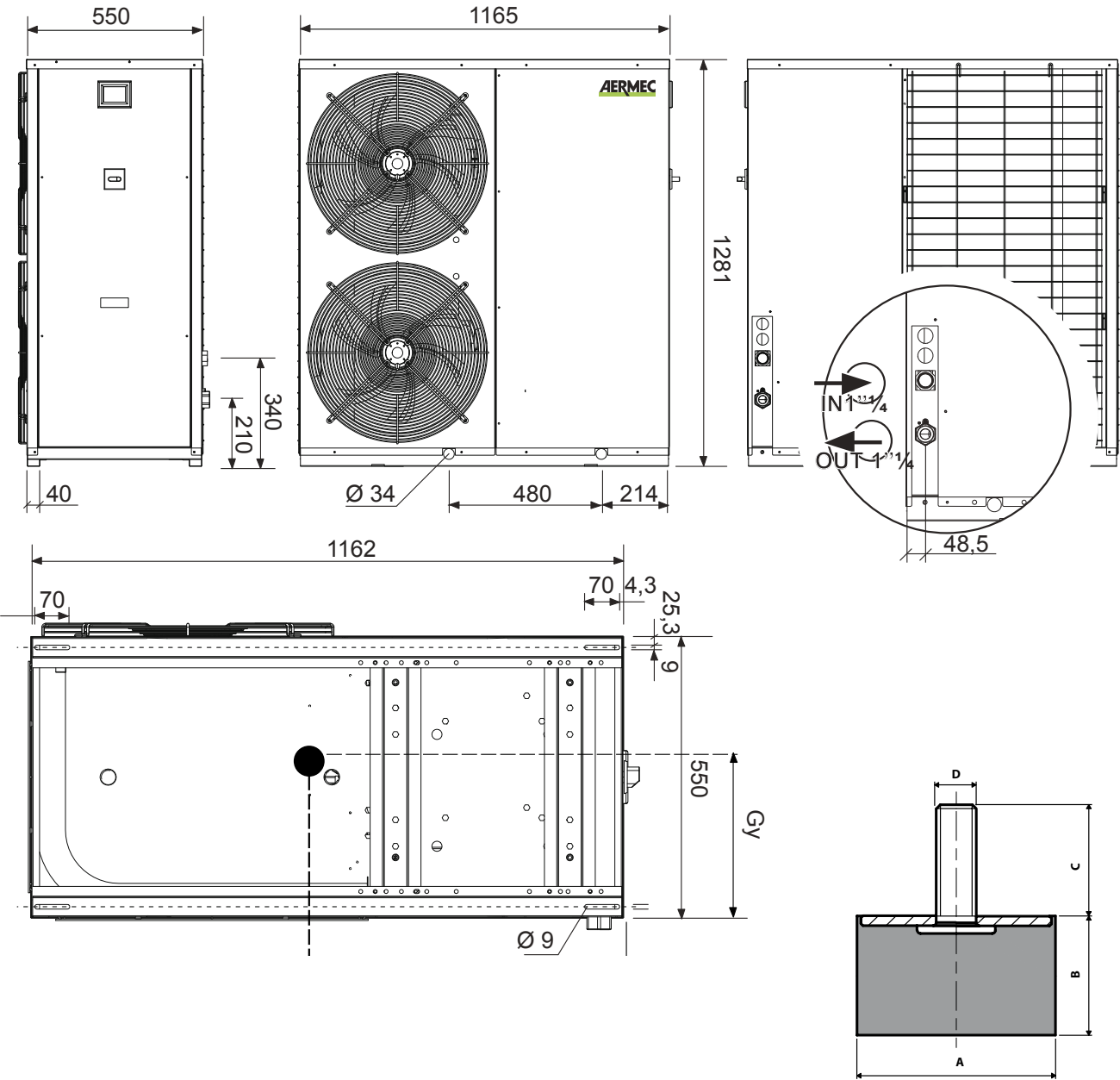


Mod.	A	B	C	D
VT9	40	30	23	M8

16.1.6. ANL 050 - 090 °A-°Q/HA-HQ

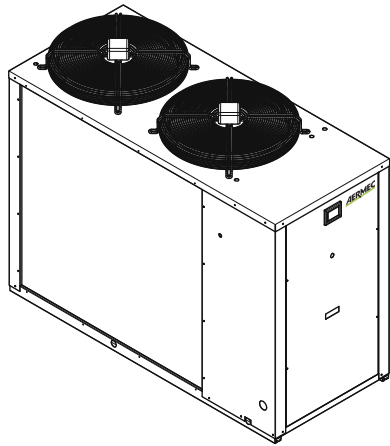


ANL	MOD.	VERS.	WEIGHTS	BARYCENTRES		KIT VT
				Gx	Gy	
050	°H	A	147	212	436	15
	°H	Q	151	212	436	15
070	°H	A	147	212	436	15
	°H	Q	151	212	436	15
080	°H	A	183	216	444	15
	°H	Q	187	216	444	15
090	°H	A	183	216	444	15
	°H	Q	187	216	444	15

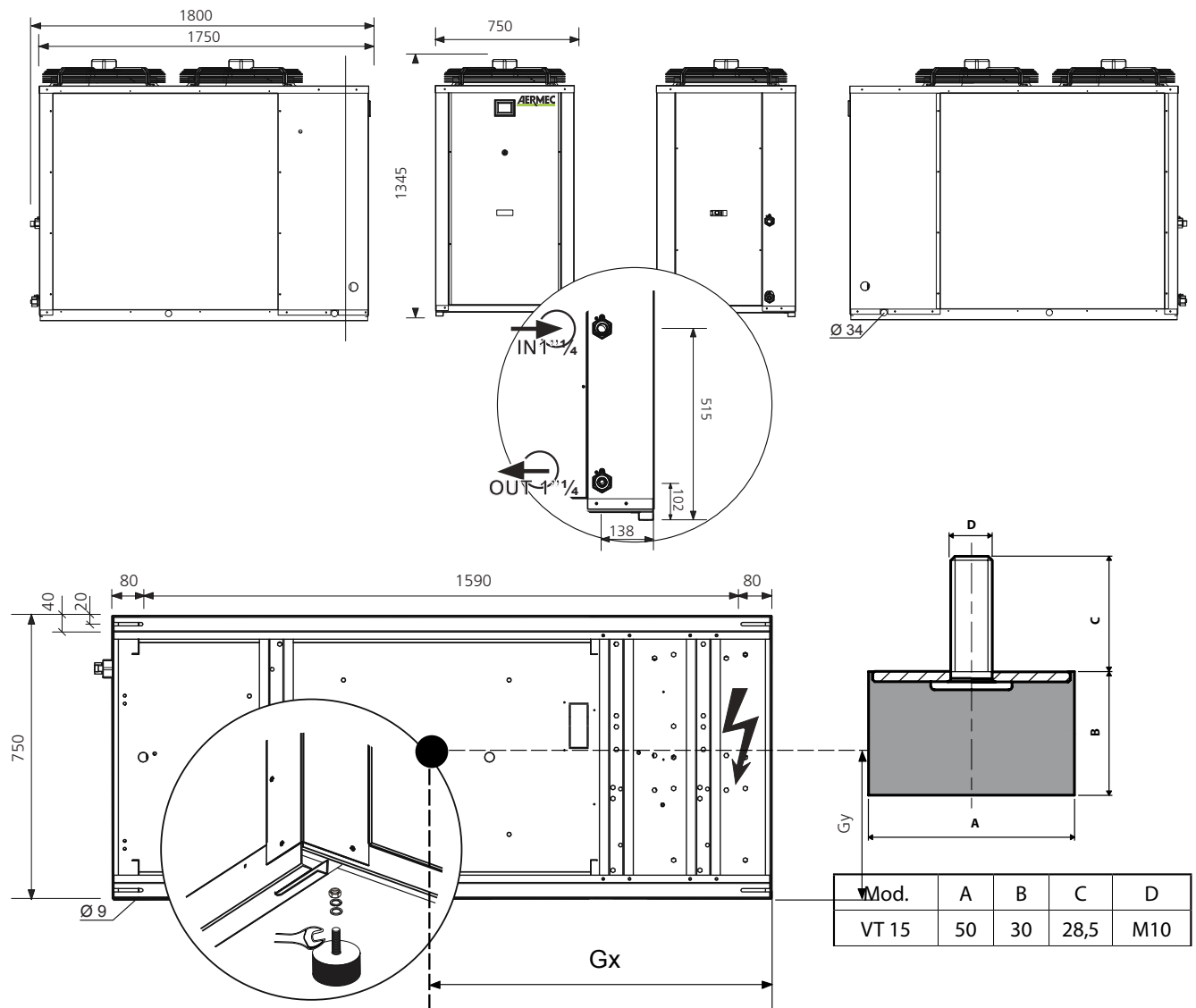


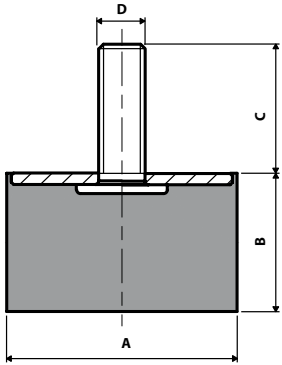
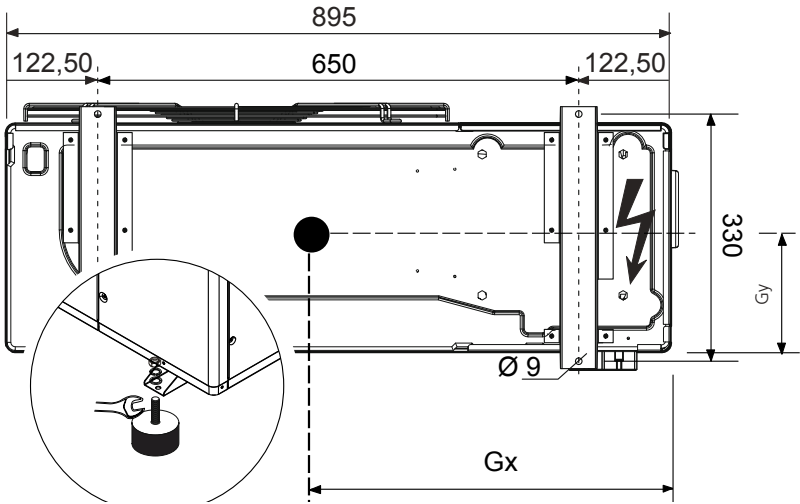
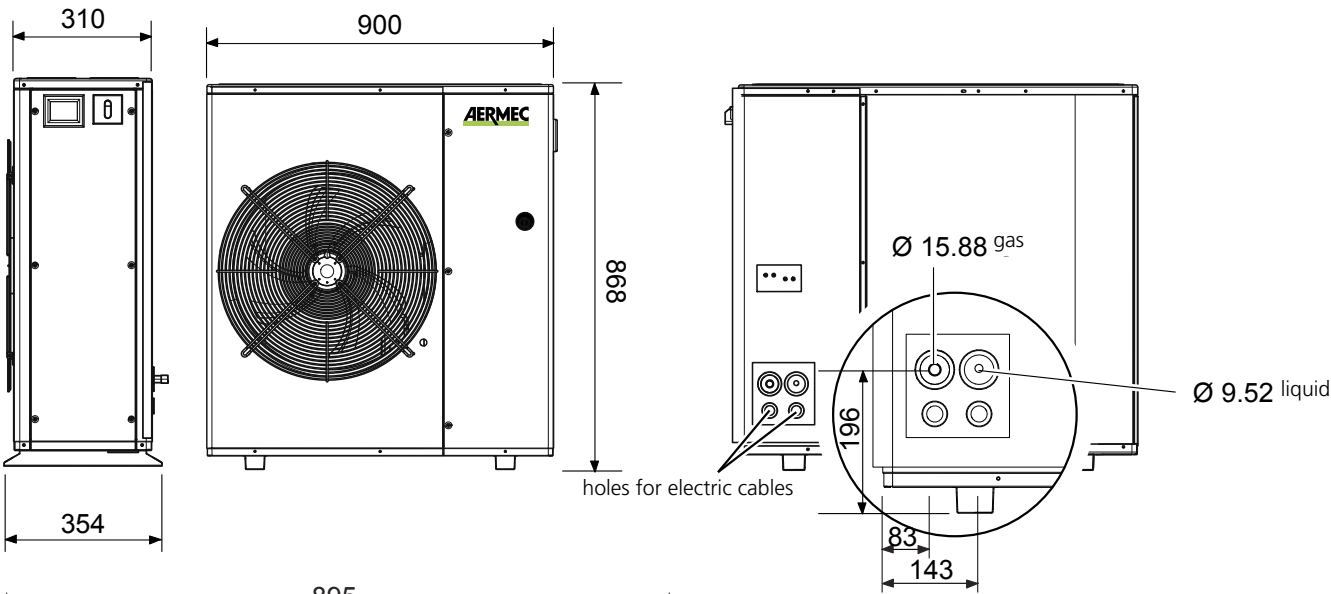
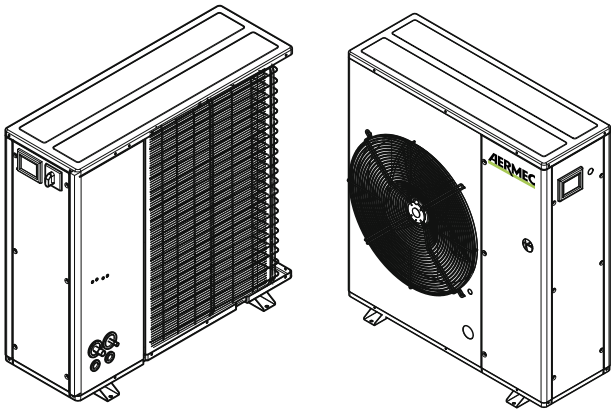
Mod.	A	B	C	D
VT9	40	30	23	M8

16.1.7. ANL 100-150-200 ° - °P - °A - °N / H - HP - HA - HN

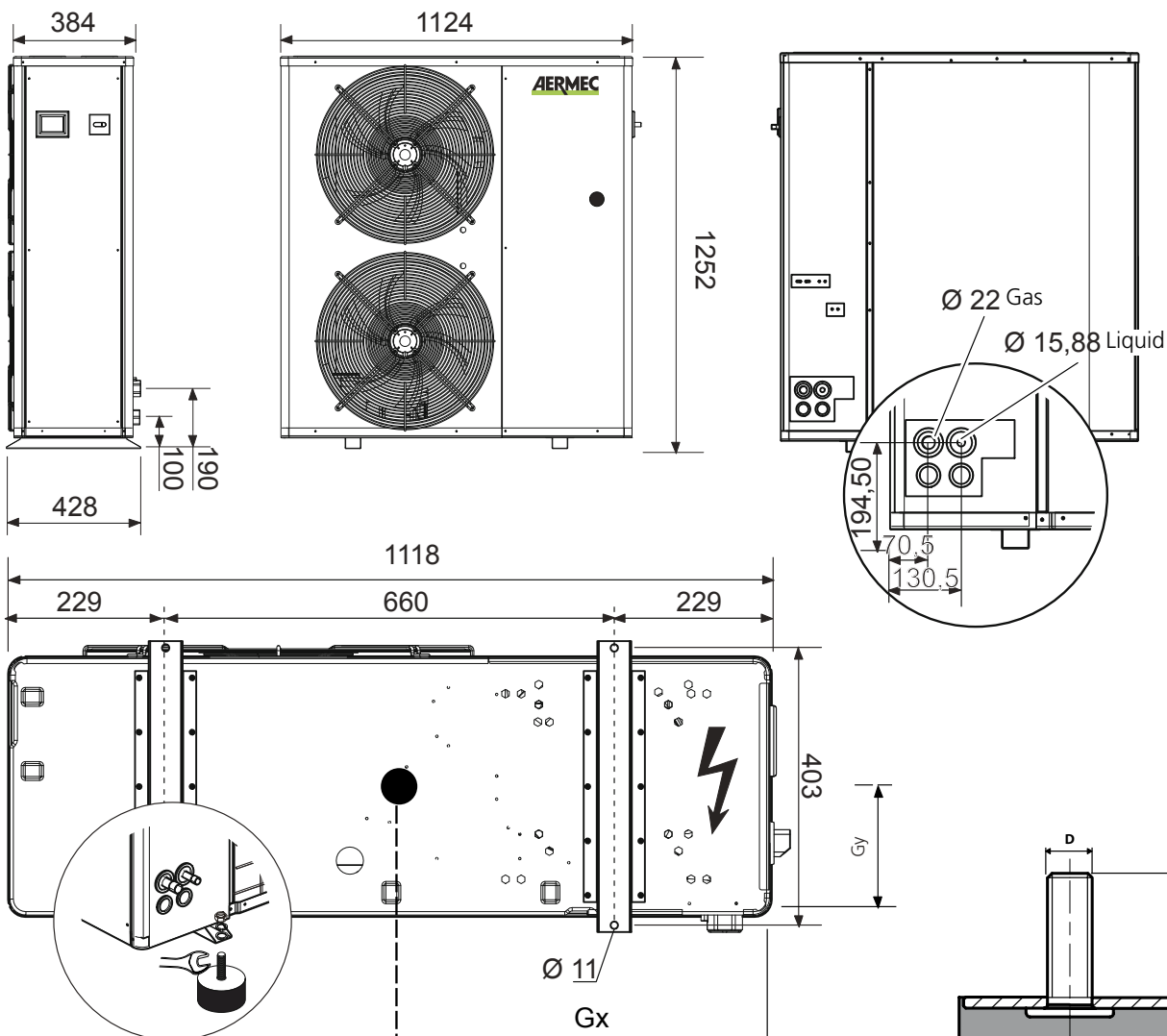
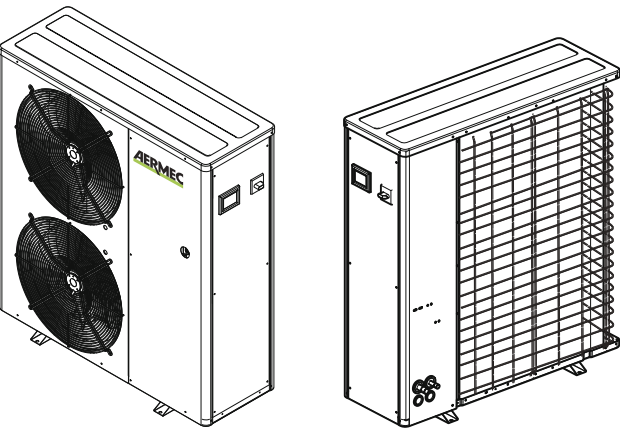


	VERS.	WEIGHTS	BARYCENTRES		KIT VT
			Gx	Gy	
ANL100	°	270	381	620	15
	P	288	382	659	15
	A	338	382	659	15
ANL100H	°	295	381	604	15
	P	313	381	640	15
	A	363	381	640	15
ANL150	°	293	383	650	15
	P	314	383	693	15
	A	364	383	693	15
ANL150H	°	322	382	630	15
	P	343	382	671	15
	A	393	382	671	15
ANL 200	°	329	383	600	15
	P	350	383	641	15
	A	400	383	641	15
ANL 200H	°	358	383	586	15
	P	379	383	626	15
	A	429	383	626	15



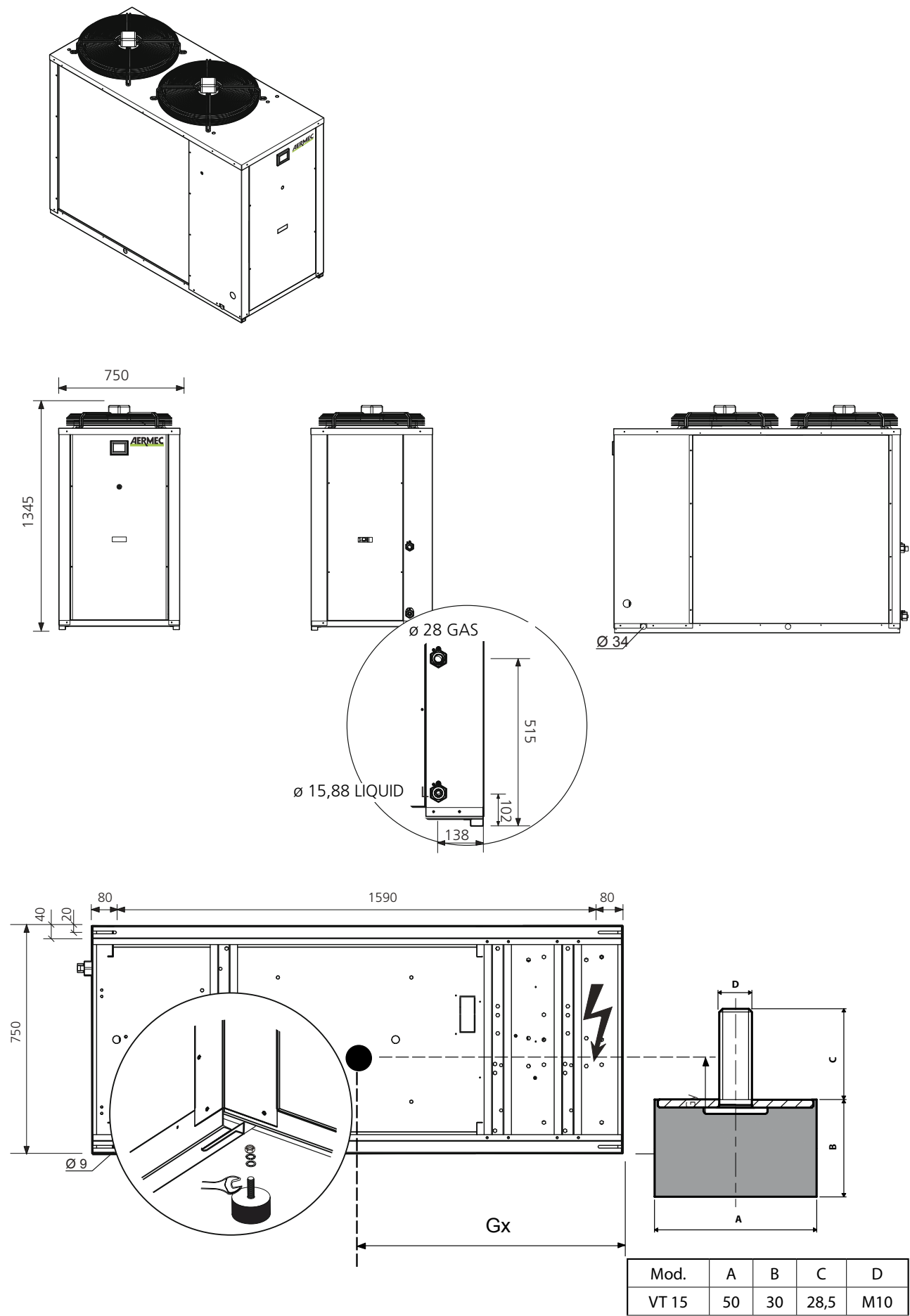


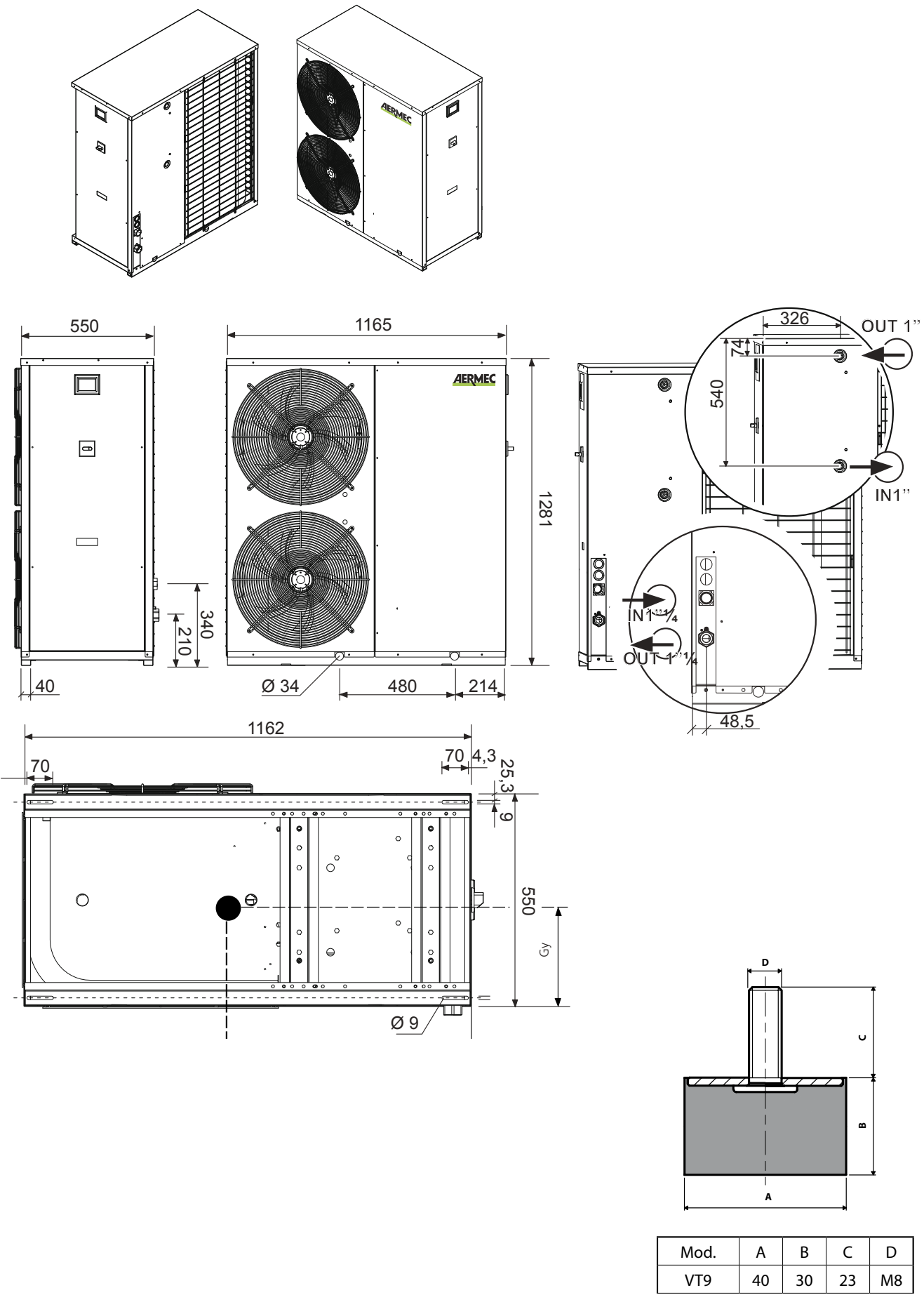
Mod.	A	B	C	D
VT9	40	30	23	M8

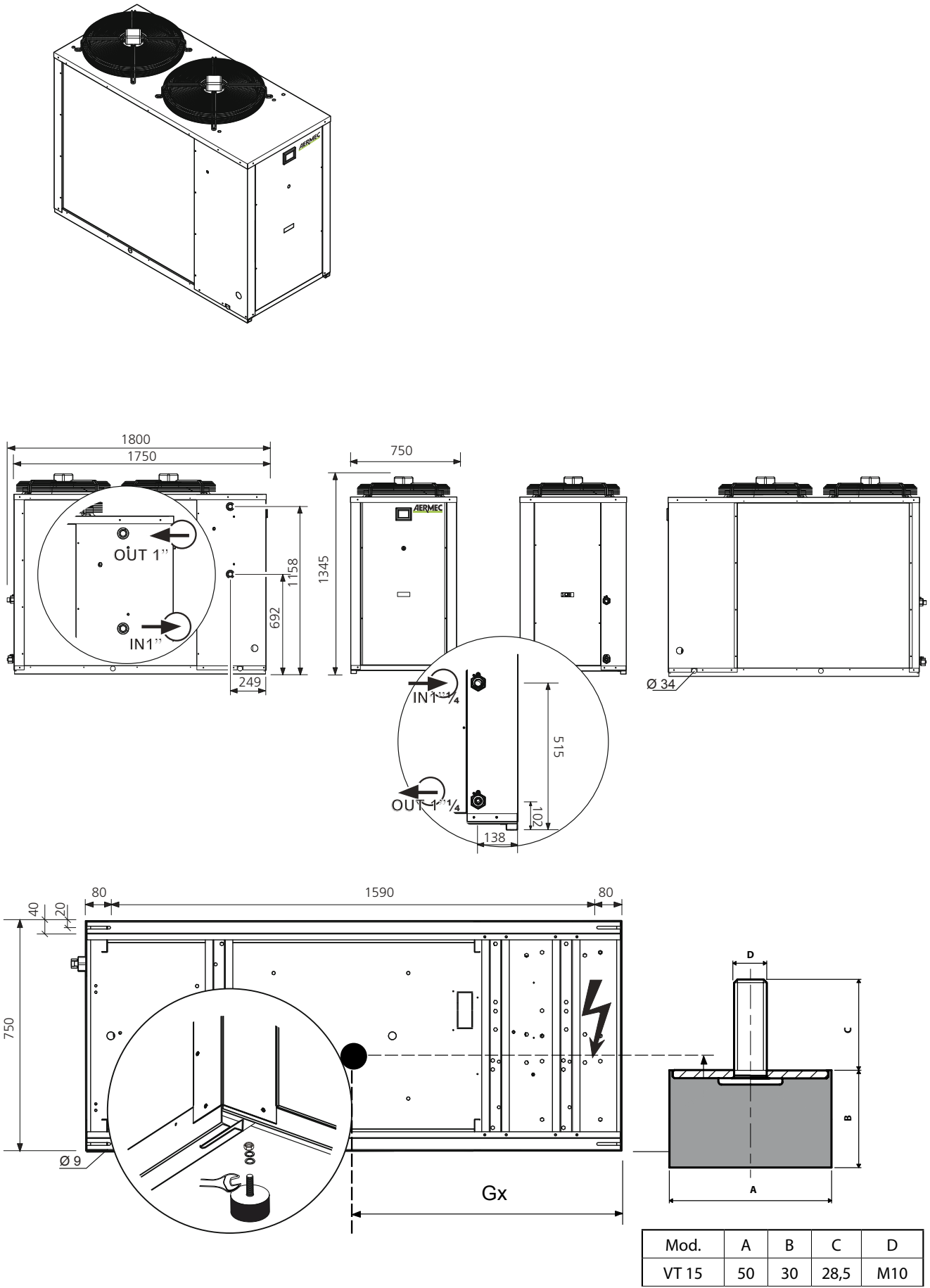


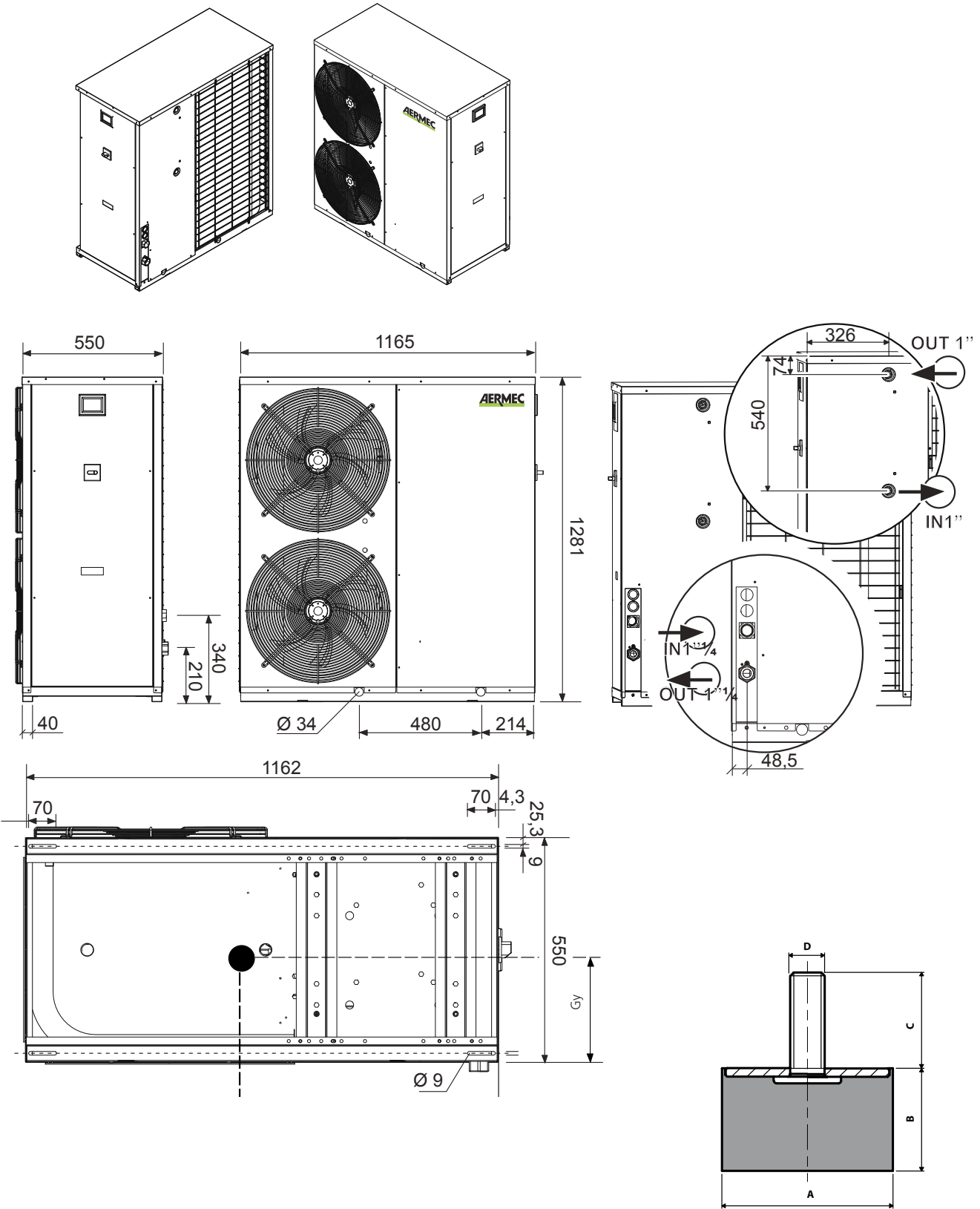
Mod.	A	B	C	D
VT9	40	30	23	M8

16.1.11. ANL 100-150-200 C

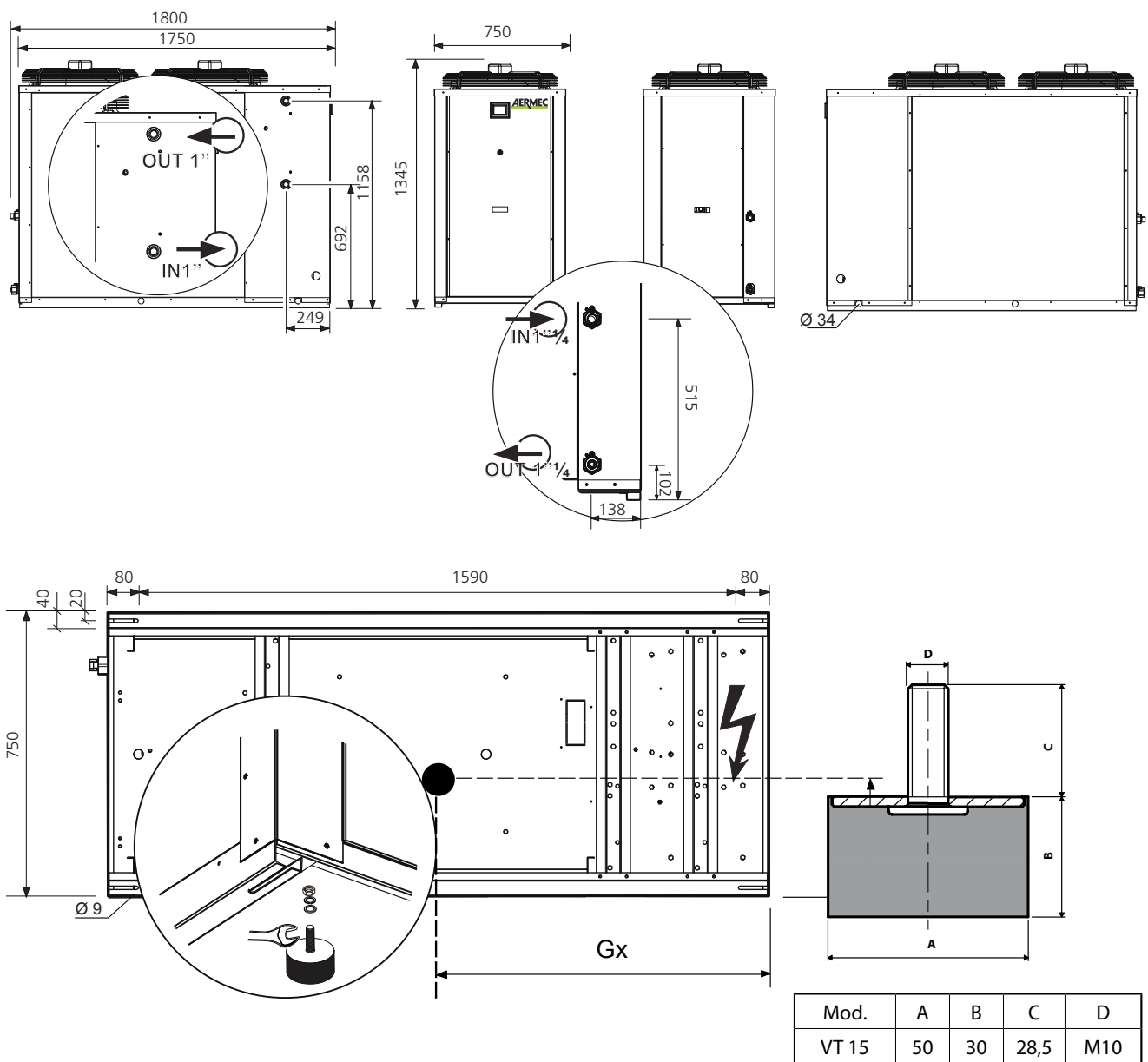
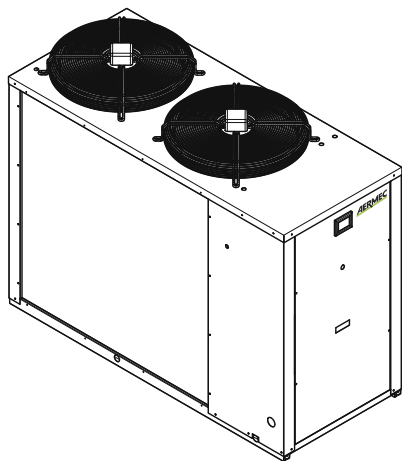








Mod.		A	B	C	D
VT9	D-HD	40	30	23	M8
VT15	DA-HDA	50	30	28,5	M10



17. LIST OF AFTER-SALES SERVICE CENTRES

VALDAOSTA	Tel. 0302 160 812	>> S.A.R.E.	FORLÌ - RAVENNA - RIMINI
AOSTA >> D.AIR di Squaiella D.& Bidoggia C. snc Tel. 0117 708 112	COMO - SONDRIO - LECCO >> Progielt di Libeccio & C srl Via Rigamonti, 21 22020 San Fermo della Battaglia (CO) Tel. 0315 364 23	di Musso Dino Corso S. Valentino, 4 33050 Fraforeano (UD) Tel. 0432 699 810	>> Alpi Giuseppe Via N. Copernico, 100 - 47100 Forlì Tel. 0543 725 589
PIEMONTE	CREMONA >> Moretti Albano & C. snc Via Manini, 2/C - 26100 Cremona Tel. 0372 461 935	VENETO	MODENA south Modena >> Aersat snc di Leggio M. & Lolli S. Piazza Beccadori, 19 41057 Spilamberto (MO) Tel. 0597 829 08
ALESSANDRIA - ASTI - CUNEO >> Bellisi s.r.l Corso Savona, 245 - 14100 Asti Tel. 0141 556 268	MANTOVA >> F.lli Cobelli di Cobelli Davide & C. s.n.c. Via Tezze, 1 - 46040 Cavriana (MN) Tel. 0376 826 174	BELLUNO >> Fontana Soffrio Frigoriferi snc Via Sampoi, 68 - 32020 Limana (BL) Tel. 0437 970 042	MODENA north Modena >> Climaservice di Golinelli Stefano. Via Per Modena, 18/E 41034 Finale Emilia (MO) Tel. 0535 921 56
BIELLA - VERCELLI >> Lombardi Service s.r.l. Via delle Industrie - 13856 Vigliano Biellese (BI) Tel. 0158 113 82	MILANO - LODI cremasca area >> Clima Confort di O. Mazzoleni Via A. Moro, 113 20097 S. Donato Milanese (MI) Tel. 0251 621 813	LEGNAGO >> De Togni Stefano Via De Nicolì, 2 - 37045 Legnago (VR) Tel. 0442 203 27	PARMA >> Alfatermica di Galbano & Biondo. Via Mantova, 161 - 43100 Parma Tel. 0521 776 771
NOVARA - VERBANIA All ranges except for split system >> Air clima service s.r.l. Via Pertini, 9 - 21021 Angera (VA) Tel. 0331 932 110 Split system only >> Cl. Clima snc di Benvegnù L Via S. Anna, 6 - 21018 Sesto Calende (VA) Tel. 0331 914 186	Tel. 0233 498 280 >> SATIC di Lovato Dario Via G. Galilei, 2 int. A/2 20060 Cassina dè Pecchi (MI) Tel. 0295 299 034 >> Crio Service s.r.l. Via Gallarate, 353 - 20151 Milano Tel. 0233 498 280 >> SATIC di Lovato Dario Via G. Galilei, 2 int. A/2 20060 Cassina dè Pecchi (MI) Tel. 0295 299 034	PADOVA >> Climair sas di F. Cavestro & C. Via Austria, 21 - Z.I. - 35127 Padova Tel. 0497 723 24	>> Benassi Graziano Via Paisello, 8 - 43100 Parma Tel. 0521 460 744
TORINO >> Aersat Torino snc di Borioli Seondino & C. Strada Bertolla, 163-10156 Torino Tel. 0115 611 220 >> D.air di Squaiella D. & Bidoggia C. snc Via Chambery 79/7 - 10142 Torino Tel. 0117 708 112	PAVIA >> Battiston Gian Luigi Via Liguria, 4/A - 27058 Voghera (PV) Tel. 0383 622 53	ROVIGO >> Fornasini Mauro Via Sammartina, 18/A 44040 Chiesuol del Fosso (FE) Tel. 0532 978 450	PIACENZA Moretti Albano & C Via Manini, 2/C - 26100 Cremona Tel. 0372 461 935
LIGURIA	AREZZO >> Clima service Etruria snc Via G. Caboto, 69/71/73/75 52100 Arezzo Tel. 0575 900 700	TREVISO >> Centro tecnico di Menegazzo srl Via Conegliano, 94/A 31058 Susegana (TV) Tel. 0438 450 269	REGGIO EMILIA >> Ecoclina srl Via Maestri del lavoro, 14 42100 Reggio Emilia Tel. 0522 558 709
GENOVA >> Brinzo Andrea Via Del Commercio, 27 1/C2 16167 Genova Nervi Tel. 0103 298 314	TRENTINO ALTO ADIGE	VENEZIA city centre >> Simonato Gianni Via Trento, 29 - 30174 Mestre (VE) Tel. 0419 598 88	TOSCANA
IMPERIA >> Aerfrigo di A. Amborno e C. s.n.c Via Z. Massa, 152/154 18038 Sanremo (IM) Tel. 184 575 257	AREZZO >> Clima service Etruria snc Via G. Caboto, 69/71/73/75 52100 Arezzo Tel. 0575 900 700	VENEZIA province >> S.M. s.n.c. di Spolaore Andrea e Musner Maurizio Via Fapanni 41/D 30030 Martellago (VE) Tel. 0415 402 047	AREZZO >> Clima service Etruria snc Via G. Caboto, 69/71/73/75 52100 Arezzo Tel. 0575 900 700
LA SPEZIA >> Tecnofrigo di Veracini Nandino Via Lunense, 59 54036 Marina di Carrara (MS) Tel. 0585 631 831	BOLZANO - TRENTO >> Sester F snc di Sester A & C via Enrico Fermi, 12 - 38100 Trento Tel. 0461 920 179	VERONA excluding Legnago >> Alberti Francesco Via Tombetta, 82 - 37135 Verona Tel. 0455 094 10	FIRENZE - PRATO >> SEAT Servizi tecnici srl Via Aldo Moro, 25 50019 Sesto Fiorentino (FI) Tel. 0554 255 721
SAVONA >> Clima cold di Pignataro D. Via Risorgimento, 11 17031 Albenga (SV) Tel. 0182 51176	FRIULI VENEZIA GIULIA	VICENZA Split system only >> Assiclina di Colpo Donato Via Capitello, 63/c 36010 Cavazzale (VI) Tel. 3368 139 63 All ranges except for split system Bianchini Giovanni e Ivan snc Via G. Galilei, 1Z - Loc. Nogarazza 36057 Arcugnano (VI) Tel. 0444 569 481	GROSSETO >> Acqua e aria service srl Via D. Lazzaretti, 8A - 58100 Grosseto Tel. 0564 410 579
LOMBARDIA	TRIESTE - GORIZIA >> La cliamtizzazione Trieste srl Strada della Rosandra, 269 34018 San Dorlgo della Valle(TS) Tel. 0408 280 80	EMILIA ROMAGNA	VALDAOSTA
BERGAMO >> Essebi di Sironi Bruno e C. sas Via Pacinotti, 98 - 24100 Bergamo Tel. 0354 536 670 BRESCIA >> Termotec di Vitali G. & snc Via G. Galilei - Trav. I°, 2 25010 S. Zeno S. Naviglio (BS)	UDINE	BOLOGNA >> Effepi snc di Ferrazzano & Proto Via I° Maggio, 13/8 40044 Pontecchio Marconi (BO) Tel. 0516 781 146	AOSTA >> D.AIR di Squaiella D.& Bidoggia C. snc Tel. 0117 708 112
BERGAMO >> Essebi di Sironi Bruno e C. sas Via Pacinotti, 98 - 24100 Bergamo Tel. 0354 536 670 BRESCIA >> Termotec di Vitali G. & snc Via G. Galilei - Trav. I°, 2 25010 S. Zeno S. Naviglio (BS)	UDINE	FERRARA >> Fornasini Mauro Via Sammartina, 18/A 44040 Chiesuol del Fosso (FE) Tel. 0532 978 450	PIEMONTE
BERGAMO >> Essebi di Sironi Bruno e C. sas Via Pacinotti, 98 - 24100 Bergamo Tel. 0354 536 670 BRESCIA >> Termotec di Vitali G. & snc Via G. Galilei - Trav. I°, 2 25010 S. Zeno S. Naviglio (BS)	UDINE	FERRARA >> Fornasini Mauro Via Sammartina, 18/A 44040 Chiesuol del Fosso (FE) Tel. 0532 978 450	ALESSANDRIA - ASTI - CUNEO >> Bellisi s.r.l Corso Savona, 245 - 14100 Asti Tel. 0141 556 268
BERGAMO >> Essebi di Sironi Bruno e C. sas Via Pacinotti, 98 - 24100 Bergamo Tel. 0354 536 670 BRESCIA >> Termotec di Vitali G. & snc Via G. Galilei - Trav. I°, 2 25010 S. Zeno S. Naviglio (BS)	UDINE	FERRARA >> Fornasini Mauro Via Sammartina, 18/A 44040 Chiesuol del Fosso (FE) Tel. 0532 978 450	BIELLA - VERCELLI >> Lombardi Service s.r.l. Via delle Industrie - 13856 Vigliano Biellese (BI) Tel. 0158 113 82
BERGAMO >> Essebi di Sironi Bruno e C. sas Via Pacinotti, 98 - 24100 Bergamo Tel. 0354 536 670 BRESCIA >> Termotec di Vitali G. & snc Via G. Galilei - Trav. I°, 2 25010 S. Zeno S. Naviglio (BS)	UDINE	FERRARA >> Fornasini Mauro Via Sammartina, 18/A 44040 Chiesuol del Fosso (FE) Tel. 0532 978 450	NOVARA - VERBANIA All ranges except for split system >> Air clima service s.r.l.

Via Pertini, 9 - 21021 Angera (VA)
Tel 0331 932 110
Split system only
>>**Cl. Clima snc di Benvegnù L**
Via S. Anna, 6 -
21018 Sesto Calende (VA)
Tel. 0331 914 186

TORINO
>>**Aersat Torino snc**
di Borioli Seondino & C.
Strada Bertolla, 163-10156 Torino
Tel. 0115 611 220
>>**D.air**
di Squaiella D. & Bidoggia C. snc
Via Chambery 79/7 - 10142 Torino
Tel. 0117 708 112

LIGURIA

GENOVA
>>**Brinzo Andrea**
Via Del Commercio, 27 1/C2
16167 Genova Nervi
Tel. 0103 298 314

IMPERIA
>>**Aerfrigo**
di A. Amborno e C. s.n.c
Via Z. Massa, 152/154
18038 Sanremo (IM)
Tel. 184 575 257

LA SPEZIA
>>**Tecnofrigo**
di Veracini Nandino
Via Lunense, 59
54036 Marina di Carrara (MS)
Tel. 0585 631 831

SAVONA
>>**Clima cold**
di Pignataro D.
Via Risorgimento, 11
17031 Albenga (SV)
Tel. 0182 51176

LOMBARDIA

BERGAMO
>>**Essebi**
di Sironi Bruno e C. sas
Via Pacinotti, 98 - 24100 Bergamo
Tel. 0354 536 670

BRESCIA
>>**Termotec**
di Vitali G. & snc
Via G. Galilei - Trav. I°, 2
25010 S. Zeno S. Naviglio (BS)
Tel. 0302 160 812

COMO - SONDRIO - LECCO
>>**Progielt**
di Libeccio & C srl
Via Rigamonti, 21
22020 San Fermo della Battaglia (CO)
Tel. 0315 364 23

CREMONA
>>**Moretti Albano & C. snc**
Via Manini, 2/C - 26100 Cremona
Tel. 0372 461 935

MANTOVA
>>**F.lli Cobelli**
di Cobelli Davide & C. s.n.c.
Via Tezze, 1 - 46040 Cavriana (MN)
Tel. 0376 826 174

MILANO - LODI cremasca area
>>**Clima Confort**

di O. Mazzoleni
Via A. Moro, 113
20097 S. Donato Milanese (MI)
Tel. 0251 621 813
>>**Clima Lodi**
di Sali Cristian
Via Felice Cavallotti, 29 - 26900 Lodi
Tel. 0371 549 304
>>**Crio Service s.r.l.**
Via Gallarate, 353 - 20151 Milano
Tel. 0233 498 280
>>**SATIC**
di Lovato Dario
Via G. Galilei, 2 int. A/2
20060 Cassina dè Pecchi (MI)
Tel. 0295 299 034

PAVIA
>>**Battiston Gian Luigi**
Via Liguria, 4/A -
27058 Voghera (PV)
Tel. 0383 622 53

VARESE
All ranges except for split system
>>**Air clima service**
di Frascati Paolo & C snc
Via Pertini, 9 -
21021 Angera (VA)
Tel. 0331 932 110
Split system only
>>**Cl. Elle Clima snc di Benvegnù L.**
Via S. Anna, 6
21018 Sesto Calende (VA)
Tel. 0331 914 186

TRENTINO ALTO ADIGE

BOLZANO - TRENTO
>>**Sester F snc**
di Sester A & C
via Enrico Fermi, 12 - 38100 Trento
Tel. 0461 920 179

FRIULI VENEZIA GIULIA

PORDENONE
>>**Centro Tecnico snc**
di Menegazzo G. & C.
Via Conegliano, 94/A
31058 Susegana (TV)
Tel. 438 450 271

TRIESTE - GORIZIA
>>**La ciamtizzazione Trieste srl**
Strada della Rosandra, 269
34018 San Dorligo della Valle(TS)
Tel. 0408 280 80

UDINE
>>**S.A.R.E.**
di Musso Dino
Corso S. Valentino, 4
33050 Fraforeano (UD)
Tel. 0432 699 810

VENETO

BELLUNO
>>**Fontana Soffrio Frigoriferi snc**
Via Sampo, 68 - 32020 Limana (BL)
Tel. 0437 970 042

LEGNAGO
>>**De Togni Stefano**
Via De Nicoli, 2 - 37045 Legnago (VR)
Tel. 0442 203 27

PADOVA
>>**Climair sas**
di F. Cavestro & C.
Via Austria, 21 - Z.I. - 35127 Padova

Tel. 0497 723 24

ROVIGO
>>**Fornasini Mauro**
Via Sammartina, 18/A
44040 Chiesuol del Fosso (FE)
Tel. 0532 978 450

TREVISO
>>**Centro tecnico di Menegazzo srl**
Via Conegliano, 94/A
31058 Susegana (TV)
Tel. 0438 450 269

VENEZIA city centre
>>**Simonato Gianni**
Via Trento, 29 - 30174 Mestre (VE)
Tel. 0419 598 88

VENEZIA province
>>**S.M. s.n.c.**
di Spolaore Andrea e Musner
Maurizio
Via Fapanni 41/D
30030 Martellago (VE)
Tel. 0415 402 047

VERONA excluding Legnago
>>**Alberti Francesco**
Via Tombetta, 82 - 37135 Verona
Tel. 0455 094 10

VICENZA
Split system only
>>**Assiclima**
di Colpo Donato
Via Capitello, 63/c
36010 Cavazzale (VI)
Tel. 3368 139 63
All ranges except for split system
Bianchini Giovanni e Ivan snc
Via G. Galilei, 1Z - Loc. Nogarazza
36057 Arcugnano (VI)
Tel. 0444 569 481

EMILIA ROMAGNA

BOLOGNA
>>**Effepi snc**
di Ferrazzano & Proto
Via I° Maggio, 13/8
40044 Pontecchio Marconi (BO)
Tel. 0516 781 146

FERRARA
>>**Fornasini Mauro**
Via Sammartina, 18/A
44040 Chiesuol del Fosso (FE)
Tel. 0532 978 450

FORLÌ - RAVENNA - RIMINI
>>**Alpi Giuseppe**
Via N. Copernico, 100 - 47100 Forlì
Tel. 0543 725 589

MODENA south Modena
>>**Aersat snc**
di Leggio M. & Lolli S.
Piazza Beccadori, 19
41057 Spilamberto (MO)
Tel. 0597 829 08

MODENA north Modena
>>**Cliamaservice**
di Golinelli Stefano.
Via Per Modena, 18/E
41034 Finale Emilia (MO)
Tel. 0535 921 56

PARMA
>>**Alfatermica**

di Galbano & Biondo.
Via Mantova, 161 - 43100 Parma
Tel. 0521 776 771

>>**Benassi Graziano**
Via Paisello, 8 - 43100 Parma
Tel. 0521 460 744

PIACENZA
Moretti Albano & C
Via Manini, 2/C - 26100 Cremona
Tel. 0372 461 935

REGGIO EMILIA
>>**Ecoclina srl**
Via Maestri del lavoro, 14
42100 Reggio Emilia
Tel. 0522 558 709

TOSCANA

AREZZO
>>**Clima service Etruria snc**
Via G. Caboto, 69/71/73/75
52100 Arezzo
Tel. 0575 900 700

FIRENZE - PRATO
>>**SEAT Servizi tecnici srl**
Via Aldo Moro, 25
50019 Sesto Fiorentino (FI)
Tel. 0554 255 721

GROSSETO
>>**Acqua e aria service srl**
Via D. Lazzaretti, 8A -58100
Grosseto
Tel. 0564 410 579

LIVORNO - PISA
>>**SEA s.n.c.**
di Rocchi R. & C
Via dell'Artigianato, Loc.Picchianti
-57121 Livorno
Tel. 0586 426 471

LUCCA - PISTOIA
>>**Frigotec snc G & MC Benedetti**
Via V. Civitali, 2 - 55100 Lucca
Tel. 0583 491 089

MASSA CARRARA
>>**Tecnofrigo**
di Veracini Nandino
Via Lunense, 59
54036 Marina di Carrara (MS)
Tel. 0585 631 831

SIENA
All ranges except for split system
>>**Frigo tecnica Senese snc di B. & C.**
Strada di Cerchiaia, 42
Z.A. 53100 Siena
Tel. 0577 284 330

Split system only
>>**Global impianti**
Senese srl
Strada Massetana Romana, 52
53100 Siena
Tel. 0577 247 406

MARCHE

ANCONA - PESARO
>>**Aersat snc**
di Marchetti S. & Sisti F.
Via M. Ricci, 16/A
60020 Palombina (AN)
Tel. 0718 894 35

MACERATA ASCOLI PICENO

>>CAST s.n.c
di Antonio Cardinali & R.
Via D. Alighieri, 68
62010 Morrovalle (MC)
Tel. 0733 865 271

UMBRIA

PERUGIA
>>A.I.T. srl
Via dell'industria, Z.I. Molinaccio
06154 Ponte S. Giovanni (PG)
Tel. 0755 990 564

TERNI
>>Capocchetti Otello
Via G. Medici, 14 - 05100 Terni
Tel. 0744 277 169

ABRUZZO

CHIETI - PESCARA - TERAMO
- L'AQUILA - ISERNIA - CAMPO-
BASSO
>>Petrongolo Dino
Via Torremontanara, 30
66010 Torre Vecchia Teatina (CH)
Tel. 0871 360 311

LAZIO

FROSINONE - LATINA
>>Mastro Giacomo
Air Service M.C.
P.zza Berardi, 16
03023 Ceccano (FR)
Tel. 0775 601 403
RIETI
>>Capocchetti Otello
Via G. Medici, 14 - 05100 Terni
Tel. 0744 277 169
Split system only
>>Dueg Clima
di Giulio Giornalista
Via Chitignano, 12B - 00138 Roma
Tel. 0688 130 20

>>Marchionni Marco
.zza dei Bossi, 16

00172 Centocelle (RM)
Tel. 0623 248 850

All ranges except for split
system
>>Tagliaferri 2001 snc
Via Guidonia Montecelio snc 00191
Roma
Tel. 0633 312 34

VITERBO
>>Air Frigo
di Massimo Piacentini
Viale Baccelli, 74
00053 Civitavecchia (RM)
Tel. 0766 541 945

CAMPANIA

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